2 FREE PLUGINS

CAELUM AUDIO CHORIC QUARTET
A VERSATILE CHORUS EFFECT

EXCITE AUDIO LIFELINE CONSOLE LITE

COMPUTER music

October 2023 / CM325

MASTERING IN THE BOX

The 2023 guide to mastering using software

LEARN HOW TO MASTER FOR STREAMING

ADD SONIC FLAVOURS TO YOUR FINAL MASTER

HOW TO MASTER TRACKS FOR PICTURE

FREE DRONE SAMPLES

PLUS ARCHIVE GUITAR COLLECTION

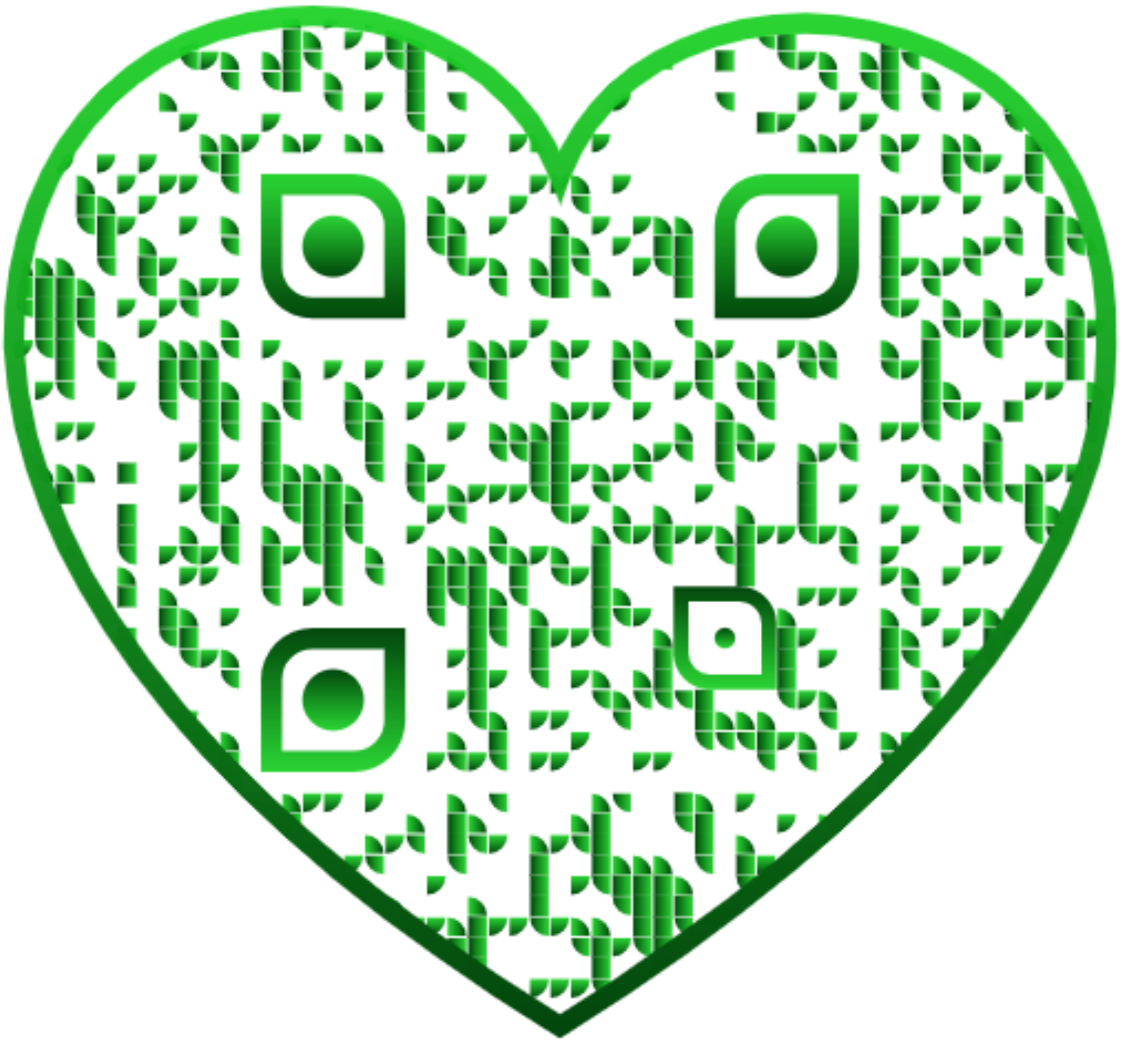
CHRIS LAKE

The megastar DJ shares his journey

GALEN TIPTON

On MPE, spectral plugins and crafting a new sound

PLUS VIDEOS, TUTORIALS + MORE!



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See page 81 to find out how to download this issue's exclusive content

welcome

Preparing tracks for release is a process that some might consider to be a less creative part of music production. But, attaining the right amount of loudness while still keeping a sense of dynamic range across our track's frequency spectrum requires us to make some big decisions about our music. While the mastering process is now no longer quite the 'dark art' that it was once perceived to be back when the only route to achieving a solid final product was to entrust your mix to a dedicated expert, it's often still quite a confusing journey. The process demands that we detach ourselves from the music we've spent so long making, and think *critically* about how to shape it into an audio product for the ears of listeners. In our cover feature this issue, we tackle mastering with a self-sufficient, in-the-box mastering mindset, and shed light on some of the most effective tools, strategies and approaches to make our tracks really pump.

We were delighted to get to spend some time with modern house music superstar Chris Lake this issue, a former reader of this very magazine and now a globally-renowned, Coachella-smashing DJ and electronic music monolith. Read our in-depth interview with Chris from p46 and learn why he swears by simple laptop speakers as the ultimate track-testing listening choice. As ever, with this issue we're bringing you an exclusive piece of software, this time courtesy of Caelum Audio. Choric Quartet is a 4-voice chorus plugin, which you can download now and follow our tutorial on p82 to learn how to use. I hope you enjoy this packed issue, and, like Chris Lake, use that knowledge to carve a music-packed future.

Andy Price Editor
andy.price@futurenet.com

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CAELUM AUDIO CHORIC QUARTET

We explain how to use this month's free software, Choric Quartet: a four-voice chorus

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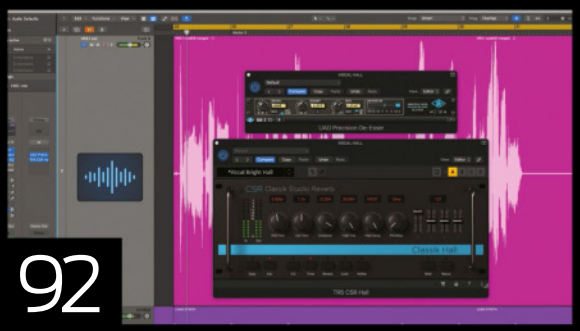
DRONES AND GUITARS

This month, our in-house sample-makers prepare some all-new drone packs and we dust down our archive guitar samples



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MASTERCLASSES

Follow along with our in-house experts as they guide you through their top tips for mixing and synthesis

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More than 80 plugins for free. All you need to get started in music production! Learn more about the suite in this PDF

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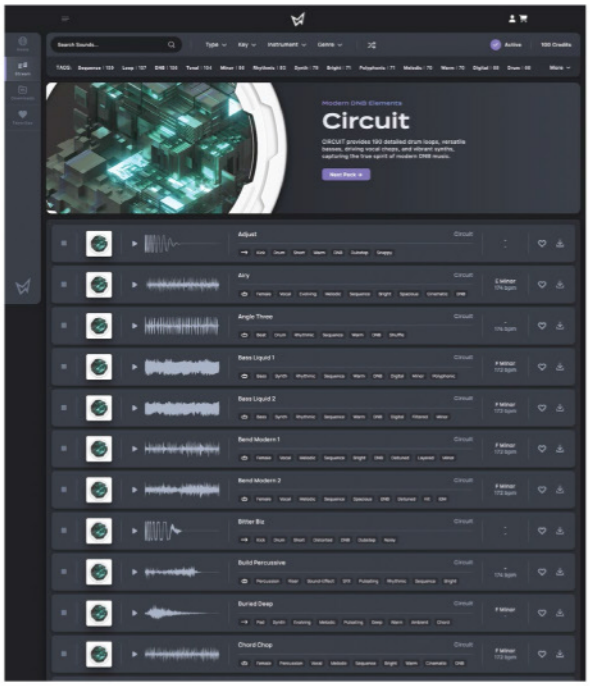
NEW RELEASES >COMMENT >INDUSTRY HAPPENINGS



Full stream ahead

Minimal Audio brings a 'non-intrusive' means of accessing their ever-expanding sample and sound libraries

> Minimal Audio has launched Stream, a brand new 'eco-system' of content which is, effectively, a new method of organising and curating their samples and sound packs. As with several of the larger sample repositories, Minimal Audio has spent countless hours crafting, organising and tagging its sound library to make the experience of browsing and auditioning a breeze.

What makes Stream so unique is Minimal Audio's non-disruptive ethos, as CEO Jake Penn explains on the company's blog; "Minimal Audio represents how we get inspired to make music. We don't want to be disruptive; in fact, we want to be invisible. We want to be so effective, elegant and most of all performant that using our products feels like second nature."

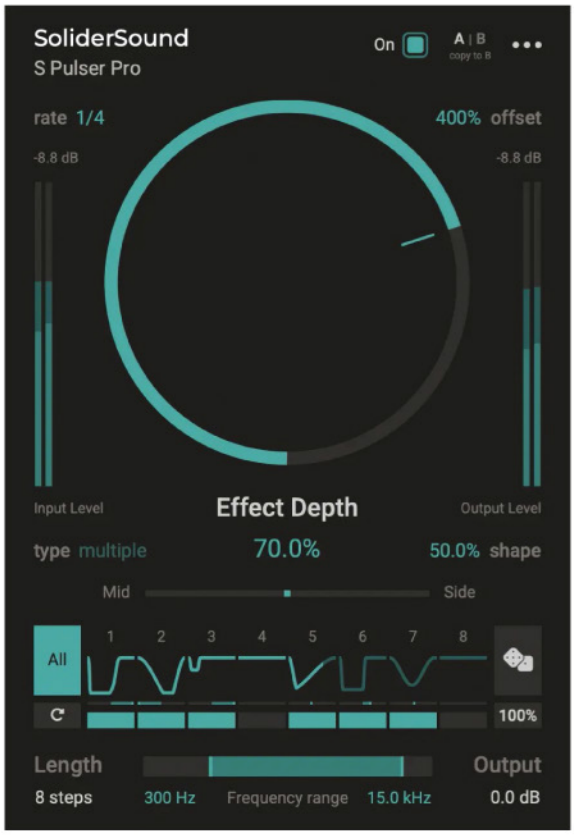
Stream is therefore a non-intrusive conduit to Minimal Audio's huge array of sounds. It can be integrated within a DAW via an Instrument plugin which brings Stream into your chosen DAW, or accessed via a web platform which will keep expanding with new instruments, effects and sounds over the coming months.

"We don't want to replace your DAW," states Jake. "And we don't want to see music production move into the cloud. We want you to stay in the flow with your favourite tools and sounds right at your fingertips."

Stream requires an always-on internet connection and will open via any modern web browsers. All samples are supplied as 24-bit/44.1kHz WAV files.

At time of writing, Minimal Audio is running a 30-day free trial if you want to try out the service yourself before deciding whether to sign up.

www.minimal.audio.com



A solid new entry from the newbies at SoliderSound

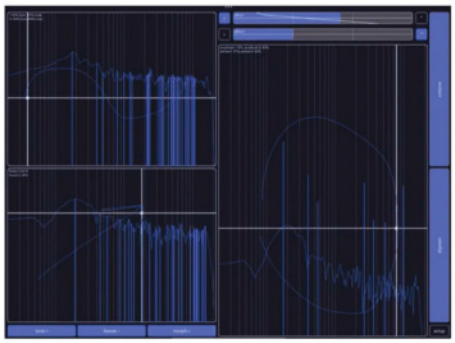
Pulse-pounding

We're always eager to check out new companies, and SoliderSound (a new brand founded as a wing of the larger Techivation) has launched with an ideal of building simple and effective audio effect plugins. There are limited frills and learning curves with their products, as the over-riding emphasis is on speed and empowering creativity. The first release – S Pulser Pro – offers the means to generate rhythmic effects from any sound source. Using multiple steps, envelope and processing types and frequency range controls, the plugin can help concoct bubbling, kinetic movement. Currently available for an entry price of $19, a stripped-back free version (S Pulser) is downloadable now to try out.

www.solidersound.com

App watch

We report on the latest developments in phone and tablet music making



Between two worlds

From Alexey Nadzharov comes Isxynth, an innovative new morphing synth that splits two input signals into two separate parts which represent a noise and tone component which the user can then morph between. You can also freeze a selected state and incorporate three-second delay lines. While a uniquely designed synth, Isxynth can also be used as an effect processor, with the ability to process left and right channels and use it as a separate app within other mobile DAWs. It's available for an intro price of $5.99.
www.apple.com/appstore

Bread and butter

ButterSynth is a hybrid six-oscillator multi-engined synth that works as both an AUV3 or as a standalone app. The synths allows you to mangle up different sounds produced by its FM/wavetable or sample-based oscillators and create all manner of new sonic universes. The dual wavetable engine features nine phase modes while the FM engine offers up 12 oscillation paths stemming from its four operators. A 32-slot modulation matrix is also a tasty addition to a robust feature set. You can buy now for $9.99.
www.kirnuarp.com

Memory machine

Synths aside, and a nifty new looper/filtering tool Molli Looper has been released by developer Molli Labs. Dubbed "the looper that never forgets", Molli Looper is intended primarily as a live performance tool, with the loops captured and sync'd to the host clock, which can then be adjusted from multi-bar loops to divisioned sequences. The filter section includes lowpass > neutral > highpass stages which results in a warm, analogue-flavoured sound. It's available now as AUV3 or standalone for the sum of $4.99.
www.mollilabs.com

COMPUTER MUSIC 10 years back

Our monthly shake-of-the-head at our earlier selves' news choices...

2013 was a critical year for the evolution of the DAW, with the release of Logic Pro X (still going strong!), Avid's Pro Tools 11 update, and the robust re-tooling of FL Studio with its own eleventh hour. In issue **cm**195 we celebrated these game-changing releases – particularly the latter – with a major dive into the then-new FL Studio 11's features such as the vectoral UI, a raft of new plugins and its expanded

> While iLok and others have got better, the whac-a-mole fight against piracy goes on

piano roll. Elsewhere, we spoke to big beat chart-toppers Basement Jaxx who were primed to release *Music*. "Great music is not about the equipment, it's about people and ideas," said Simon Ratcliffe, who sentences earlier had raved about Logic being the duo's cornerstone. So a bit about the equipment, then...

We mulled over the beefed up iLok security restrictions that had been rolled out to software products across the industry over the decade in an effort to get piracy under control. "No copy protection system is going to please everyone, but as we've already noted, most users accept that they're necessary," we opined. While iLok and other systems have got better, the whac-a-mole fight against piracy goes on.

cm195 landed in the middle of a DAW renaissance

Feline filtering

Released in 1976, the Octave Cat was a biting analogue synth in the vein of the ARP Odyssey. Now Cherry Audio has collaborated with Carmine Bonanno, the instrument's original designer, to release a plugin version. It replicates the Cat's dual-oscillator design, and also brings you its aggressive resonant filter, flexible modulation system, oscillator cross-mod and oscillator sync. Enhancements include expanded 16-voice polyphony (the original was duophonic) sample-and-hold glide, built-in effects and a dual-step sequencer. You also get MPE support, more than 300 presets and extensive MIDI mapping features. Also, you can make it look like either the Mark 1 or SRM version of the hardware. The Octave Cat plugin runs on PC and Mac in VST/AU/AAX formats and is available now, priced at $49 (regular price will be $69).

www.cherryaudio.com

Ins & outs

2020 VISION
After a seven-year wait, Yotaro Shuto's 2020 The Semi-Modular Beat Machine is finally out now. This modular software playground features a sample slicer, looper, kick synth, 12 samplers, two FM synths and two pitch transposers. Incredibly deep stuff!

BOB BOWS OUT
Famed mastering engineer Bob Ludwig has announced that he is retiring and closing Gateway Mastering Studios. The legendary engineer worked with Queen, Guns 'n' Roses, Paul McCartney and more, and has more than earned a happy and chilled retirement.

ON THE TILES
Over at Tileyard London, a new Atmos listening center has been launched. The Gallery is aimed at championing smaller artists and producers looking to record and release in spatial audio formats. It'll allow them to demonstrate their Atmos mixes in all their huge glory.

FRED'S CABLE CONFESSION
Fred again... revealed on TikTok that the bass sound in 2022 single *Jungle* was actually created not with a synth, but a sample of the "mad noise" that a "dodgy cable" made when he plugged it into his audio interface. This low-end throb was recorded by his iPhone.

TALES FROM BEYOND THE RAVE
A new book, *Rave New World*, written by a former barman at Orbital's legendary warehouse raves aims to provide a firsthand account of an incendiary era. Written by Kirk Field, the book intends to balance social commentary with personal stories.

ALWAYS SOMETHING TO HEAR
A study conducted by Johns Hopkins University has indicated that silence really is something that the human ear can actually hear. While the details are too lengthy to go into, the indications from the study are that the ear responds to silence as a sound.

Add instant analogue character in your DAW with Excite Audio Lifeline Console Lite

Download the modular mixing plugin worth $49 with our exclusive coupon

> Developer Excite Audio launched back in 2022 with debut plugin Lifeline Expanse, a multi-effect that combined elements of distortion, reverb and amp-sim. A second release, Lifeline Console, followed hot on its heels. Much like Lifeline Expanse, Console takes analogue-style processing and places it into a modern, versatile interface that can be rearranged to suit a host of different processing duties. The focus here, however, is on the sort of mixing tools offered by vintage consoles and outboard hardware found in iconic recording studios.

Lifeline Console features five modules, focussing on Pre-amp emulation, EQ, Compression, tape-style Modulation and Wear, which can emulate mechanical noise and analogue-style artefacts. Each features a range of parameters to tailor the sound, and every module can be bypassed or rearranged, allowing users to radically alter the overall signal flow. A final master module allows users to blend between the dry signal and Clean and Vintage tonal characteristics.

What sets Console apart is that it places these analogue-inspired processes into a clean and modern UI, which is fully resizable and provides responsive visual feedback within each module. It also boasts zero latency in addition to a host of highly-useable presets.

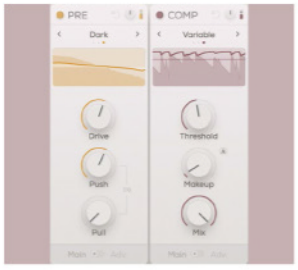
Users can get a taste of what Lifeline Console is capable of with the introductory Lifeline Console Lite, which usually sells for $49, but can be downloaded absolutely free with the exclusive voucher code at the bottom of this page. Console Lite packs the same five effect modules as its bigger sibling, all the core controls and 100 presets to get you started.

If you're hooked, you can upgrade to the full version to add features including advanced controls, mid/side operation and additional active visual feedback.

How to download your copy of Lifeline Console Lite

1. Grab your free plugin at: **www.pluginboutique.com/products/9103**
2. On the payment page, enter the coupon code: **ez0q8710**
3. Offer expires 31 August 2023 (23:59 PST)

THREE EFFECT COMBINATIONS TO TRY WITH LIFELINE CONSOLE LITE

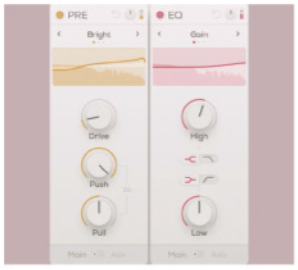


Pre-amp and Compression on drums

1 **Pre-amp's Dark saturation mode is a key ingredient for bringing weight and 'glue' to a drum bus. Pair it with the Comp module's Variable setting for a tight and coherent sound**

Modulation, Wear and EQ for characterful pads

2 **Capture the rich and slightly degraded sound of acts like Boards of Canada by combining slow Tape modulation, Cassette-style wear and a Vintage high-shelf EQ cut**



Pre-amp and EQ for air

3 **Capture a modern hi-fi sound that's great on hi-hats or vocals by using Pre-amp's Bright setting. Add in a Clean boost using EQ in order to target the high frequencies**

DAACI: More than an AI composer

DAACI is an innovative new 'meta-composition' tool that its creators say will revolutionise producer workflows across the board. But unlike other models, they claim, this one will put human beings right back at the centre. We found out more...

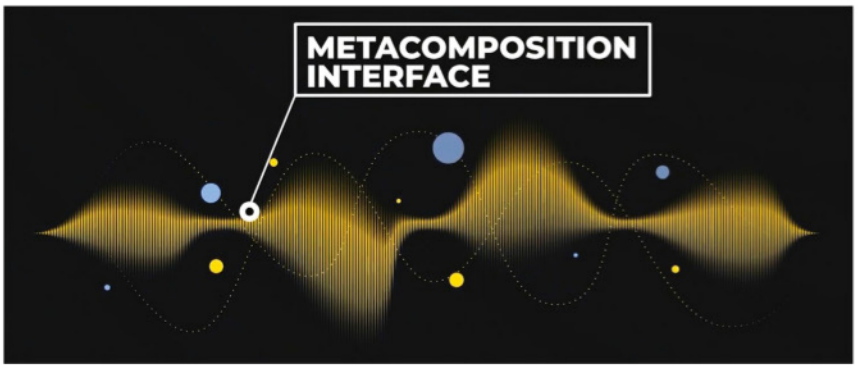
DAACI CEO
Rachel Lyske

cm: Can you give us an overview of just how DAACI works, and what benefits it brings for musicians and composers?
Rachel Lyske: "We created DAACI to be the next step in the evolution of music creation and to be an industry leader when it comes to AI and music. Our goal would be to empower the composers of today and tomorrow, allowing them to create music like never before with the power of collaborative and assistive AI technology.

"One of the major innovations with DAACI is that it isn't just a generative AI that ingests loads of pre-existing music and puts out its idea of what that sounds like. DAACI's team, is made up of composers and musicians who all respect the creative process and the rights of artists, and there are serious questions to ask about the ethics of training AI on other musicians' copyrighted work. Our AI isn't trained on other people's catalogues. DAACI is different in that it composes, arranges, orchestrates and produces music with authentic and high-quality output, empowering producers and composers and giving them the opportunity to take on projects that they may not have had the capacity to deliver before. Traditionally, composers have had to compose by inputting specific note choices in a DAW, which puts all kinds of limitations on their creative process. With DAACI composers still compose by encoding their musical choices, or 'meta-composing', allowing the AI to compose for them on the edge. So, If you're a game developer looking for your next soundtrack, even a dynamic soundtrack catered to the individual, DAACI can assist you to create the sonic environment you envision to help make your game-worlds dynamic, engaging, and highly personal.

"DAACI will also open doors for artists and composers to get paid whenever their music is used. Whether you're using those AC/DC-inspired guitar riffs or a funky drum pattern inspired by Chad Smith, DAACI can trace where every note comes from and will circulate the rights back to the original source of inspiration. This is the truly unique aspect and is what positions DAACI at the forefront of the industry, and really enhances our message of 'Created by composers, for composers'."

How do DAACI's learning algorithms differ from those of other AI music-generating software?
"Most music generation startups set out to build end-to-end systems that can generate a full music track based on very little user input, like a few seconds of music or a set of rough keywords. Like, if you tell the software that you want music that is 'happy' and 'classical', it will try to create its own interpretation of what those words mean musically. Most of these systems rely on deep learning methods trained on large existing collections or, alternatively, play 'musical Tetris' with pre-composed loops or static elements. This takes human creativity almost fully out of the loop, and it's actually ethically questionable. The reason why we respond to music is because of the human connection and the creators behind it.



DAACI's technology is based on the user's intentions... not a patchwork of historical reference points

Unlike other solutions in the AI and Generative music market, DAACI doesn't rely on pre-recorded tracks or edited audio samples. Instead, it writes musical elements and textures directly through the encoding of musical ideas. So, it'd really be more accurate to say that DAACI has been taught rather than having learnt, and that's an important distinction when we're discussing the ethics of those solutions that feed on catalogues of music."

Where do you see DAACI being deployed in the industry. Do you see it being central to a producer's workflow?
"Absolutely! We're excited by the power of this system and what it will do across the music industry and many others. We see DAACI being deployed to various markets, each with differing needs. We're able to develop interfaces for composing with different levels of user control depending on who our end user is and what they need. Take content creators, for example. They could be provided with a library of ready-made tracks generated by DAACI's technology, or perhaps a bit more control through an interface that lets them specify what track they want in terms of genre, mood, and maybe instrumentation.

"On the other hand, more musically-inclined users, like songwriters and producers, will want a finer degree of control over certain musical elements that DAACI generates. So, an interface designed for them would include more parameters related to musical elements within a track and the ability to export the output in an editable format.

"We see it being used as an assistive tool to be integrated into professional media production processes, from film and TV production to game development, as we spoke about before, to enhancing virtual worlds. Composers and commissioners would adopt DAACI in order to scale the amount of music for a brief, and to speed up time to delivery in order to meet tight production schedules' deadlines.

"Ultimately, we aim to offer solutions for creative people and creative companies and will be central to the way music is created and monetised."

Can you tell us a little bit more about the bespoke synth module and how it works to create 'environments'?
"The synth module is what DAACI uses to generate high-quality and coherent audio from MIDI data. It is, in essence, a DAW without any note information. It contains what we could call 'sonic worlds' made up of distinct production environments. The environments themselves are made up of various combinations of software instruments, samplers, effects and parameter data, like fader levels, that work together to form a musical arrangement that leads to a coherent mix. The environments also include the necessary routing for buses and groups – all of those aspects of the output's mix that we're familiar with in the recording booth, like reverb, delay, group compression, mix bus processing, etc."

Abbey Road's Red start up programme have provided support for DAACI

"The synth module also allows for each track or 'element' to be viewed as a separate and distinct entity from its environment, meaning it can be combined with any different number of tracks from other environments, creating new composite environments. The producers and composers are the ones creating all of the elements, so they're the ones engineering this vast and growing ecosystem of interconnected worlds. This is as powerful as it sounds. It means we have the principles of composition for any musical texture that we can call and combine in any circumstance. It's the ultimate solution to collaboration and empowering composers to meet briefs on the edge."

"DAACI will open doors for artists to get paid whenever their music is used"

cm: How has the experience of working with Abbey Road Studios (who recently absorbed DAACI into their Red incubation program) helped to develop DAACI and has it engendered deeper connections with the wider industry?
"The team at Abbey Road are incredibly supportive and sensitive to what we are striving to achieve with DAACI. We're building our system as a creative tool for the likes of the very people that walk their halls so advice, guidance and feedback from within the industry are crucial to our mission. We have an incredibly powerful system and together with the industry we can build something special that is value-adding for artists, composers, producers and music makers of all kinds.

"We have been able to speak to incredible people within Abbey Road Studios and UMG, pitch our ideas and technology, get their feedback and get a steer on how we should develop it, whilst respecting artist rights and ethics and so much more. We are looking forward to that continuing throughout the programme."

cm: Are you thinking of rolling out a subscription-based model to DAACI?"
We're developing a range of different products. Many of them will involve us integrating our technology into other applications and platforms to extend their musical offering. We're also working on a software application that's aimed at helping artists and songwriters in their creative process, and that could well be a subscription-based application."

cm: It seems like keeping a grasp on the ethics of AI is central to DAACI. Do you think that artists, producers and performers will stay at the heart of music-creation in the future?
"Absolutely. DAACI has been built by composers, artists and producers. They're crucial to this whole ecosystem working. It won't exist without composers. We aim to assist, amplify and streamline their process so that they can write faster and write more. It's our view that artists, producers and composers will continue to be the cornerstone of music creation. DAACI is interpreting what has come from a composer's brain rather than trying to imitate something that's come from them, and that's an important distinction."

cm: Finally, what's next for DAACI, and how (or when) can our readers get hands on with what DAACI can do?
"We're working towards rolling out our technology in various forms by the end of this year. You can find out how to access DAACI's technology by watching out for announcements on product launches across our channels. Exciting times!"

For more information and to keep track of DAACI's progress, visit www.daaci.com

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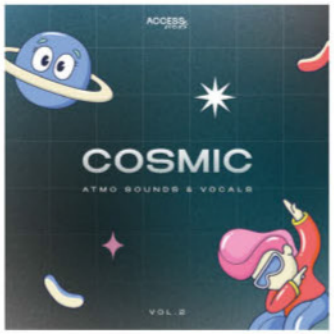

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15 questions with...

Galen Tipton

Galen Tipton's wildly imaginative approach to electronic music treats sound like silly putty. We find out how MPE, spectral plugins and AI speech-enhancement software shaped the mind-boggling *brain scratch*

> Deep down in TikTok's digital abyss lies a treasure trove of strange, unearthly, and brain-tickling sounds; a warped, bizarro realm, populated by alien sonics, otherworldly textures, disembodied vocals and imaginary instruments. Welcome to the weird and whimsical world of producer Galen Tipton, who is pioneering an experimental new sound called 'brain scratch'.

Tipton's work explores the phenomenon of ASMR through the lens of experimental electronica, collaging synths, samples, field recordings and MIDI instruments together in music that alloys the aesthetics of hyperpop, IDM and video game soundtracks with the improvisational anarchy of free jazz, the sonic curiosity of musique concrète and a generous sprinkling of cuteness and whimsy. *Brain scratch* has found an enthusiastic reception on TikTok, where Tipton's music soundtracks viral clips you might find on the *r/oddlysatisfying* subreddit and has amassed close to 1.5 million likes. Tipton's album *brain scratch*, self-released in May, collects 20 of these songs.

Brain scratch is a wildly imaginative marvel of sound design. Tipton's Bandcamp page tags the record as 'fairy grunge', a phrase which perfectly captures the music's extraordinary texture: heavy but soft, like a weighted blanket. At times, listening through the album feels like bathing in a hot-tub full of strawberry milkshake; sticky, sweet and slightly overwhelming. Most of the songs on *brain scratch* are under two minutes, and only a handful stretch above three. These are bite-sized nuggets of sonic satisfaction, capricious curiosities that whizz past your ears before you can even figure out what you've just listened to.

We spoke with Galen Tipton from her home in Ohio to find out how the new album was made, hearing about how MPE, spectral plugins and AI speech enhancement software shaped the mind-boggling sound of brain scratch.

1 Tell us more about 'brain scratch' as a style and its core elements? What do you think drives its popularity?

"I wanted to make heavily experimental sounds that also didn't take themselves too seriously"

Galen Tipton: "The core elements behind the sound are essentially music I made back in my early days of taking music seriously, around 2015. I was very inspired and interested in the formlessness of early Arca music and the sound design of SOPHIE, while having a heavy interest in nature aesthetics and folklore, ASMR and field recordings.

"To simplify the thought process as much as possible, I wanted to combine all of these interests into something both accessible and experimental, partly as a reaction to a lot of self-serious and inaccessible experimental music I was interested in at the time. I wanted to make heavily experimental sounds that also clearly didn't take themselves too seriously and invited people into stranger music."

2 How do you feel that the 'brain scratch' sound evolved over the course of recent years?

GT: "It's evolved in a few ways, incorporating more free-form improvisational elements, sound collage and intentional use of 'IDM' elements. I had no idea what IDM even was when I started! [laughs] To tell you the truth, I have no idea why it has become so popular, but I am totally here for it. It is a sound that I never thought would have become popular because it is arguably the least accessible music that I make. It's nice getting the chance to play even more with it and be encouraged to take even more risks with it, because of the overwhelmingly positive response I'm getting."

3 What was it that inspired you to integrate the phenomenon of ASMR into your music?

GT: "ASMR is something I've always experienced even before having the term to describe it, both in musical and non-musical sounds. It's something I've always incorporated into my work, because it is so intertwined with what I find enjoyable about music that I couldn't separate it if I wanted to."

4 You mention in the text accompanying the record that you were aiming to create "hyper-real ecosystems". Could you tell us more?

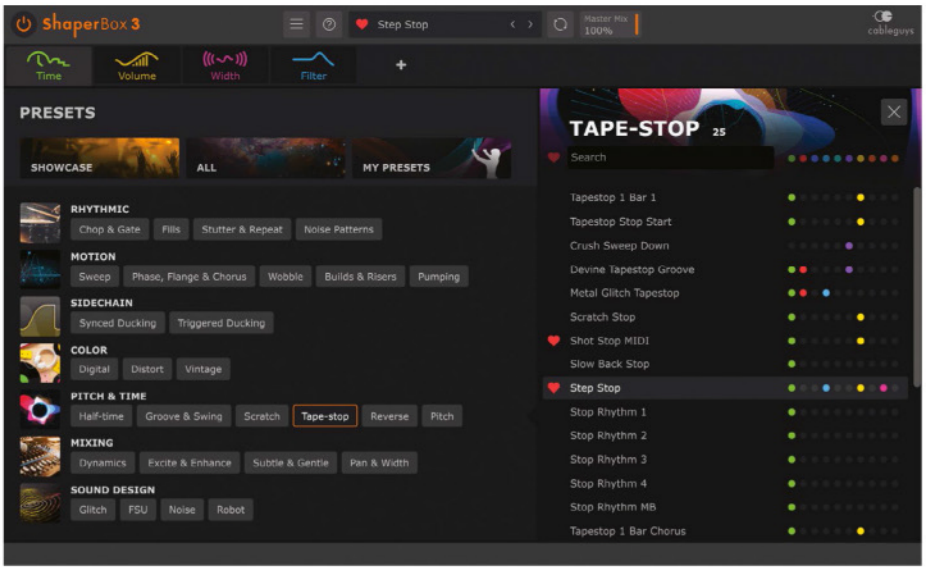
GT: "Hyper-reality to me is just an elevated version of reality, simultaneously real but also impossible. It is both passive and active, familiar and unfamiliar. It can exist in the realm of the uncanny, which can often make people uncomfortable, but also it can be really silly. Overexaggeration, humour and camp are things that are hugely important to my work and I often find 'overdoing it' can let you express emotions more deeply than if you did so by sticking too close to realism."

5 Could you talk us through maybe one or two pieces of equipment that were fundamental to the making of the new album?

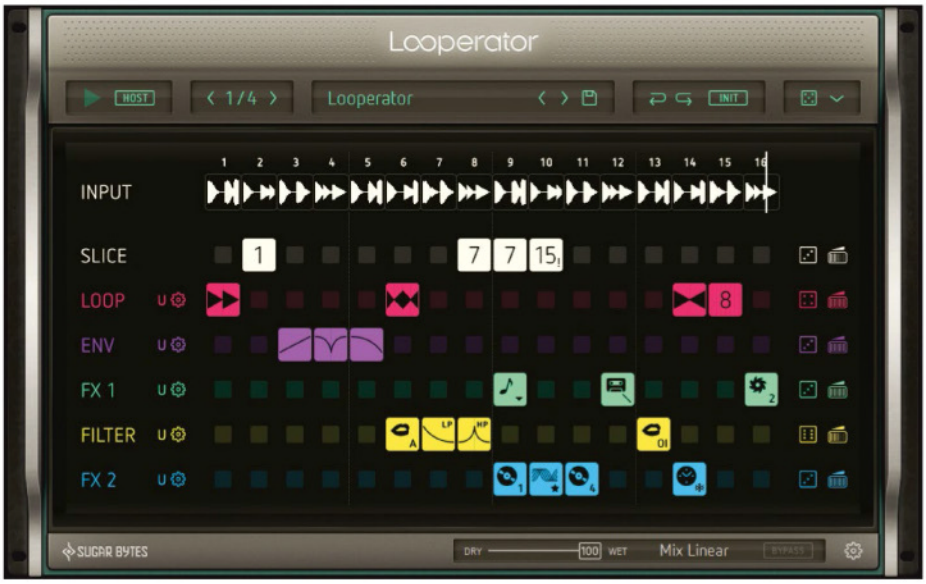
GT: "As always, I rely so much on my Ableton Push to create this type of music. Before producing the record I was able to get a hold of the Expressive E Touché SE expression pedal to fully take advantage of MPE. For those who don't know, MPE allows you to make MIDI synths behave more like acoustic instruments, allowing you to get greater levels of expression and complexity out of your MIDI instruments. The synthesis aspect of this record is all about 'overdoing' it with MPE and just getting as strange and emotive as I can with it."

6 Could you pick an element of a track from the new project and give us an insight into the process behind it?

Expressive E Touché and Ableton Push: an experimenter's friends



Cableguys Shaperbox 3 is one of Galen's desert island plugins



...as is SugarBytes Looperator

GT: "I had a really fun 'a-ha!' moment at the very beginning of the album's creation on the track *The Scavengers Hymnal* when I discovered through a Twitter post that you can run musical audio through Adobe's Speech Enhance AI software – which is meant to improve audio for podcasts – and it would try to turn that musical element, in this case a digital bassoon, into a voice. I use this trick all over the record, layering in these otherworldly digital voices into the music (as well as occasionally using a Vocaloid here and there). Having this digital human voice motif was a nice, small way to help glue the record together."

7 Talk us through your current studio space a little bit?
GT: "Still a 2011 Macbook, but now with Logic, Ableton, and FL Studio as well as a souped-up 2010 Mac Pro."

8 Are you using all three of these DAWs on a regular basis?
GT: "My main DAW is Logic Pro and that is mostly because I learned how to produce on Garageband and all of those skills transferred over to Logic very easily. I also use Ableton a lot but end up exporting everything and transferring over to Logic at a certain point because I just flow in it better. Recently I have been using FL Studio for some specific features and plugins not available outside of it. I've also been interested in checking out Bitwig, I just haven't sat down with it yet. In the end I'd like to feel comfortable in any workspace to make IRL collaboration easier, since everyone has their own DAW they are comfortable in."

9 Are you more of a software-based producer or do you tend to favour hardware and outboard gear? Do you know when a track is done?
GT: "Definitely software for sure, just because of mobility and flexibility, but I'm not against hardware at all. Without the Ableton Push I wouldn't be able to create the music that I want to make."

10 Could you run us through a couple of plugins that are really fundamental to your workflow or your sound?
GT: "If I'm lost, as a basis for a brain scratch song

"My kingdom for a Metasonix KV-100 Assblaster or Metasonix TM-7 Scrotum Smasher!"

I will always start with a Native Instruments Massive (original, not X) preset with all of the effects off, the Soundiron Whale Drum Kontakt library, and a physical modeling instrument of some kind, like Corpus or Chromaphone. Each has really specific sounds and textures that I like and they help glue the sound together, even if they get completely mangled and destroyed."

11 If any, what hardware synths or drum machines do you use?
GT: "I don't have any hardware synths or drum machines at the moment, but in terms of analogue gear I've been getting really interested in distortion pedals. I'm really interested in the possibilities of inducing ASMR experiences with distortion, and have been working with a ton of fuzz pedals, PLL pedals, and most recently I got hold of the Vermona Filter Lancet which I'm extremely excited about. Oh, and pretty much anything Chase Bliss is doing. I used the Chase Bliss Habit and a rented Blooper pretty heavily for my next project."

12 Tell us about some of the samples found on the new project. How many of these are self-recorded and how many are from other sources?
GT: "There's a good mix of self-recorded samples and things from all sorts of sample packs across the internet. A good chunk of the textures on this record I made running samples through various spectral software (iZotope RX and Oeksound's Soothe and Spiff) meant to clean up audio, but using them in ways not intended. For example, when running a sound through Oeksound's Spiff and just isolating the delta signal, it instantly turns anything into this drippy gooey sound that I'm just in love with."

13 How often are you experimenting with new studio gear and software?
GT: "I'm a bit obsessed with finding new plugins to play with all the time, and a lot of my work is made experimenting with or learning something new. However all of these new plugins are just auditioning to be a part of my 'go-to' tool box. I have some desert island plugins for sure. Cableguys Shaperbox 3, Devious Machines Infiltrator 2, and Sugar Bytes Looperator to name a few – that I both always go back to and that I know I can use in any production situation."

14 Is there anything that's on your wishlist studio-wise?
GT: "My kingdom for a Metasonix KV-100 Assblaster or Metasonix TM-7 Scrotum Smasher! [laughs] I have been using some Reaktor emulations of Metasonix hardware and would really love to get hold of an actual physical version one day."

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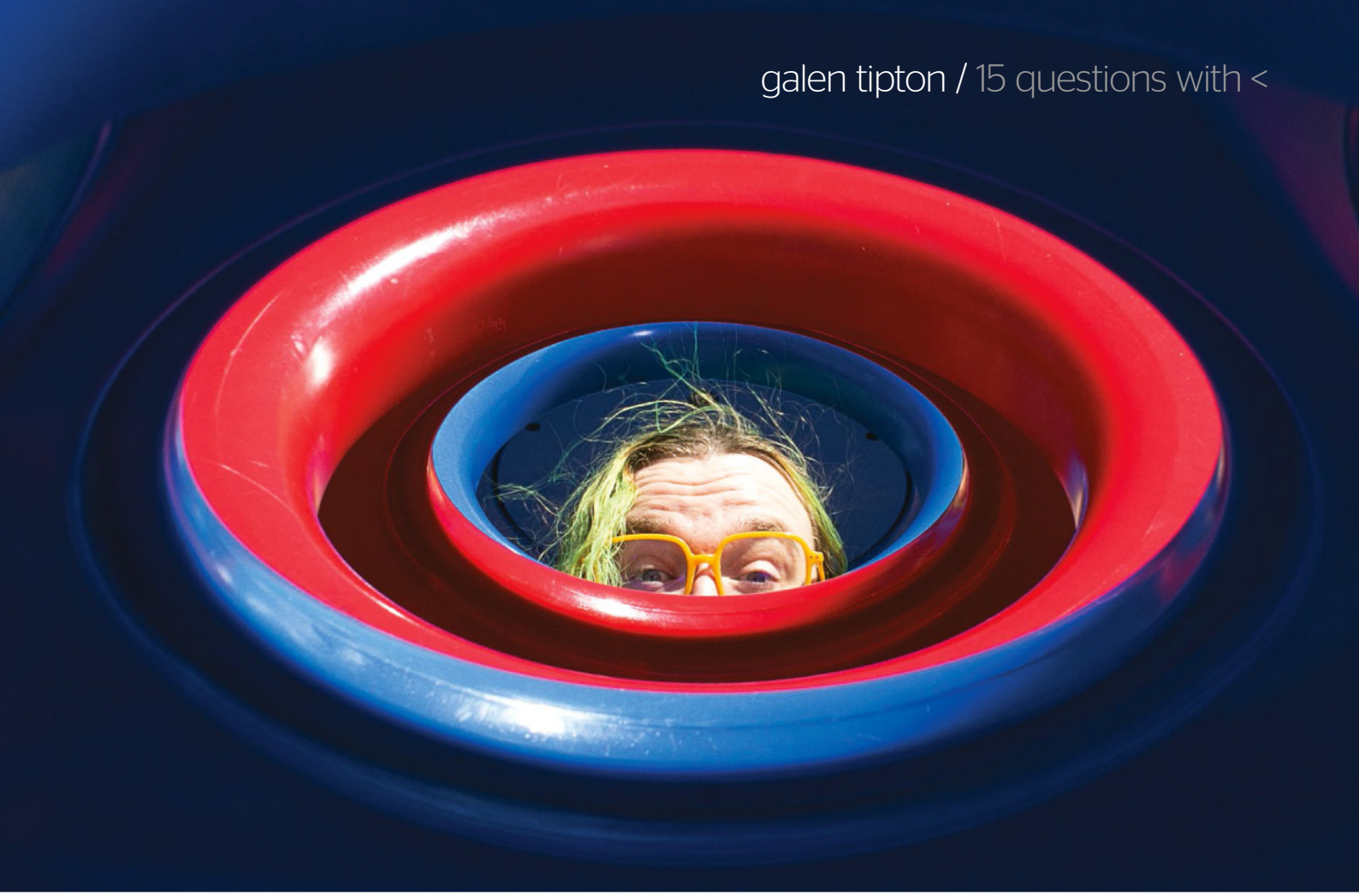

15 Tell us about your other aliases and collaborative projects. How does the music you make as Galen Tipton differ to the music you make as Digifae and Recovery Girl?

GT: "Galen Tipton is just anything I want to make, although this has heavily skewed towards brain scratch music because it is paying my rent. Recovery Girl is pop and the limitations that come with it. It's a practice in restraining myself and limiting my options to try and become a better songwriter. Digifae is anything Diana Starshine and I make together, and that can be anything we want, but we both love pop and dance music so it typically ends up being some mutation of that." **cm**

Galen Tipton's *brain scratch* is out now

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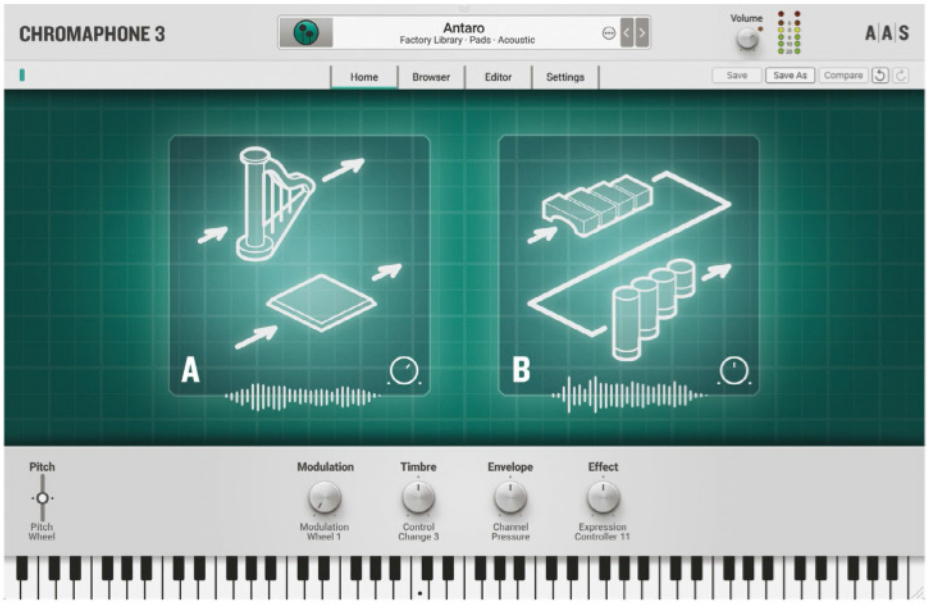

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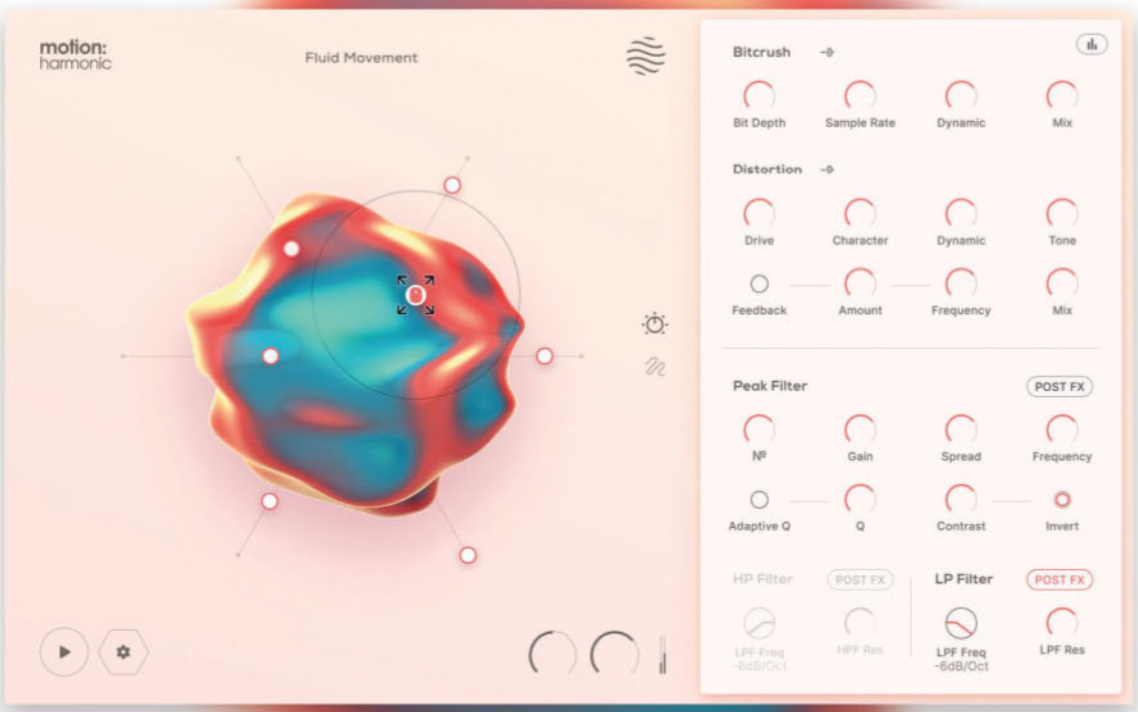

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MASTERING IN THE BOX

Budget won't stretch to a trip to a mastering engineer? Or fancy some DIY? Get started here...

> There was a time, before the total dominance of computer-based DAWs, when the vast majority of bedroom producers really had no idea what mastering was, or why you'd want to entertain it. We understood mixing, because faders are fairly self-explanatory, but not so with the aural depth of mastering. Before we look at how we can now handle this process ourselves, let's take a moment to reflect on its legacy.

Mastering is the final process in the production chain; it's where you take your finished mix and give it that final bit of spit and polish, before you send it up the wire to your chosen streaming service for public consumption. Make no mistake, a good master can breathe life into a mix, but how is this done?

It's easiest to think of mastering in terms of its signal processing chain, wherein one process leads to the next. For example, you may choose to use equalisation to brighten your mix, or enhance the bottom end, while the next process may involve compressing your mix. There are other tricks we can use to add grit or sweetness.

In a pre-DAW age, tape would have been mastered through a series of analogue devices, such as EQ, compressors and limiters. The very sound of these units, including the tape machine itself, would add colour and enhancement to the final mix. The finished article would be the master, ready for pressing to record or CD.

In 1996, TC Electronics introduced the Finalizer; a 1U, rack-mounted product that could perform the entire mastering process in one box. It caught on; in fact, it completely changed the industry for home producers. It was therefore only a matter of time before the technology progressed to the DAW level.

There is plenty of pro-aimed mastering software on the market, but it's also possible to achieve great results using our core DAW elements. Understanding the process is key, so let's walk through some basics, in order to release your mastering mojo.

Monitor setup: mastering is made significantly easier when you're sitting directly in the centre of the stereo image

Setup and equalisation

So you want to do some mastering? The first steps could be more vital than you think...

Before you begin mastering a track, consider your setup. You don't need to have a massive arsenal of software, but you do need to ensure that you've got some basics, and these should all be kept close to hand.

Most DAWs are pre-equipped with plugins that are ideal for simple, or even more advanced mastering. Regardless of your DAW of choice, try using these ready-to-go tools before spending extra dough.

It's helpful to have a volume control; you might choose to use your computer's volume, but having an audio interface, with a handy level pot, is by far the most ideal solution. You don't want to be working at terribly high volume, and you certainly don't want to be caught out by a sudden loud burst of audio, so remain ready to adjust that dial should you need to.

And you're going to need some form of monitoring. Headphones can be useful to check mixes, but there is no substitute for planting your head between a pair of studio monitors. The ideal is to have your computer in the centre, with monitors on either side, so that as you make adjustments to your track, you can hear them easily, without the need to move your head very far. Many of the adjustments that we make in mastering can be quite subtle, and craning your neck to hear each processed element is not ideal.

You don't need a massive arsenal of software, but you do need to have some of the basics

The room you are mastering in may affect your perception of what you can hear from your monitoring, so try to keep your monitors out of room corners, unless you have acoustic treatment in place. Room corners exaggerate bass frequencies, so placing monitors away from corners will help reveal a truer picture of your track's make-up.

Check your references

Once you're happy with your equipment setup, listen to some commercially available tracks which demonstrate a sonic identity that you want to try to emulate. Listening to existing music will also help you gauge exactly how much high-frequency content is provided by your monitoring. Be aware that certain styles of produced music might seek to over-emphasise or highlight certain frequency bands. Rap and hip-hop will almost certainly present a greater amount of bottom-end gain.

In essence, you need to begin to listen to music and mixes in a more analytical way. A good starting place is to think of a track being divided into a top, middle and bottom, in terms of frequency (pitch) plots, while considering how much of each of these three areas are in play within your track. If you're listening to a pop track, you'll probably hear a crisp and bright vocal, meaning that there is exaggeration in the upper echelons, whereas the pounding bass and kick of a club track offers bottom-end exaggerated tendencies.

Linking the chain

Having prepared the physical elements of your setup, it's now time to place your mixed stereo file on a track within your DAW, and pave the way for mastering. The chain of plugin elements that you might choose to use will differ from one musical style to another. However, the basics will largely remain the same. We're going to begin by using an EQ; this is an abbreviation for equalisation, and could be more accurately described as a precision tone control.

Ideally, you want some form of multi-band EQ plugin, which provides capacity to cut and boost your high and low frequency bands, but

Use a Parametric EQ, with a narrow Q ratio, to locate troublesome frequencies

The basic Channel EQ presented in Logic Pro; four parametric bands with high/low cut and boost

DIY room optimisation

One of the biggest issues for anyone working in the confines of a home studio, is dealing with the acoustics presented to you by your home. Very few of us have the luxury of being able to hire an acoustic specialist to treat your working area. As if the domestic situation couldn't get much worse, we often have to deal with rooms which are cube or oblong-shaped, or to put it another way, the worst possible shape for a home studio setup. There are, however, plenty of cheap tricks you can use, just about all of which involve lessening the reflection of sound, from walls or windows. If you have heavy curtains in your studio room, try placing your speakers in front of them. This will limit reflection from the wall/windows behind. Or hang a blanket or duvet over some mic stands, behind your mixing position. This greatly reduces reflections from the wall behind you, as you're monitoring, and is particularly effective in smaller rooms.

with the ability to zoom in on a specific frequency, to either reduce or boost. These more focussed equalisation examples are found on parametric EQs. It is possible to also use multiple instances of EQ plugin to achieve the same result, but having all of the information available in a single display definitely makes life easier.

Taking your reference material, begin to compare it with the track that you wish to master. Start by thinking about the lower bass frequencies, and the bright upper frequencies. While there might be a temptation to boost both elements, try to be objective; your aim is to create a balanced and listenable master akin to your reference, not one that just excites and exaggerates immediately.

Troublesome tones

You may have encountered frequencies in your mix which are not very pleasant. These can often stick out of a mix like the proverbial sore thumb. When you are new to mastering, these rogue frequencies may not be quite so obvious, so there's a useful trick to try. Narrow the Q ratio of a parametric EQ, and sweep the full frequency spectrum. This promotes any rogue frequencies, enticing them to jump out at you; as these are slowly revealed, you can eventually correct. The best way of doing this is to cut the troublesome frequency point back, using the cut/boost control on your EQ. The end results should be starting to sound far more palatable.

Just like mixing, getting to grips with mastering EQ takes time, patience, listening and practice. Always try to be objective. If it doesn't sound as good as you thought it did, when you come back to your master an hour later, try again!

TC Electronics Finalizer: the box that changed the world of mastering, providing a single solution for professional and home users alike

Limiting and compression

Having dealt with some of the tonal aspects of your track, let's now turn our attention over to dynamic levels and compression

Have you ever been stood in a noisy location, struggling to be heard as you have a conversation, and found yourself shouting? It's really no surprise that the advertising industry has been employing the exact same tactic for years when it comes to selling us their products in the media. You may notice that when television or radio adverts, or even podcast and YouTube ads, present themselves, they appear to be louder than the content that you tuned in to hear/see. In other words, the advertisers are shouting just that little bit louder, to get their point across.

The more volume-sensitive individuals among us might have noticed that this increase in volume is not just a literal increase in sound

1176: the Universal Audio clone of the vintage 1176 compressor. Wonderful sound, but with an elevated bottom end

A basic DAW-based compressor, with the three all important controls; threshold, ratio and make-up gain

levels. It is actually a squashing of the dynamic range of the advert, in order to metaphorically tap us on the shoulder, and drive the point loudly home. This can be achieved through the use of compression and limiting, both of which are among the core weapons in the armoury of a mastering engineer.

Should we limit, or compress?

What is the difference between compression and limiting? Before we attempt to answer that question, it's important that we note that while equalisation deals with the tone of your master, compression and limiting deals with the dynamic range. This point is clouded slightly, as certain styles of compressor will also affect the tone of a track.

Compression and limiting are tools in the armoury of a mastering engineer

Often, we prefer to use transparent-sounding compressors for mastering, as we get a sound exactly as described on the tin. This is less the case with compressors of a vintage persuasion, either in hardware or cloned software, as they often bring benefits in tone, along with a slight distorting of frequencies. As a case in point, you'll find that the classic 1176 compressor exaggerates bass frequencies, hence it lends itself to use on bass instruments,

Coming back to our original question, limiting has one function, which is to seek out peaks in volume, and reduce them. Limiters are very literal in the way that they operate, and could be considered quite utilitarian as a result.

By contrast, compressors approach the dynamic spectrum from both above and below. They will also locate peaks in volume, reducing them at a threshold set by the user, but they also allow for the dynamic floor of your mix to be increased, creating a far narrower, dynamic range. If you take this concept to its logical conclusion, it means that you could completely squash your mix into the most narrow of dynamic bands.

Whatever your genre, leave headroom for any compressor to plough its trade

Why might you want to do this? Think back to those adverts you see and hear everyday. If you're working within the realms of commercial music, it's quite likely that you'll adopt a reasonably narrow band for your dynamic range, creating a sustained, constant, and perceptually loud sound, which makes the listener take heed.

By contrast, take a style of music which is more cinematic or classical in nature, and you'll probably want to maintain a wide dynamic scale. Classical music, in particular, is dependent on a wide and varied range of dynamics, so you'll want to employ compression to a far lesser degree.

Levelling up

Whatever your chosen musical genre, you should leave headroom for any compressor to plough its trade. This means adopting an industry standard, by presenting a mix for mastering with a headroom of -6dB below maximum peak. This allows the compressor to perform its duty. Post-compression, you'll be able to recover that missing 6dB, using the makeup gain.

It's sensible to adopt a similar workflow while adding compression, as we did with EQ. Listen to your reference track again, and think about its dynamic range. Is it relatively full and dynamic, or at the more compressed and squashed end of mix business?

Plug in a suitable compressor from within your DAW. We'll concern ourselves with three main controls; firstly, the threshold control will dictate where the compression starts to take effect. If you want to compress more, you'll need to reduce the threshold setting. Most compressors will give you some form of gain reduction metering, so if it's not immediately obvious, you should see some form of graphic twitching, as you reduce the threshold amount.

The ratio control will dictate the amount of compression, as it's applied. As you increase this control, you'll probably start to hear your mix pumping in a rhythmic manner to accompany the music which is being compressed. This might be desirable in certain musical scenarios, but by and large you'll most probably want to employ compression, which is transparent to the listener.

The third control that we want to use is the Make-Up control; this performs much like a volume control, increasing the output from the compressor. By increasing the make-up gain, while also compressing the top of the dynamic spectrum, you can create a squashed and compressed mix, which for most commercial settings will be very desirable. The knack is getting this to sound natural, and this is where you have to listen and be objective.

Multiband compression is the next step in taming levels in your master, allowing compression control at the frequency band level

Battle of the bands

Apart from basic compressors, we also have access to multiband compressors, which allow us to zone in on a particular frequency band, only compressing that particular section. In mastering terms, this can be something of a revelation, as it engages a mix-like mentality to mastering a track. Many DAWs will offer plugins to cater to this, as part of the package. The Multipresser, offered in Logic Pro, is a great example; we can compress, reduce and increase specific frequency bands to not only balance a master beyond the mixing stage, but also add the all-important compression. This can be particularly useful when taming low-end bass frequencies. Many of these forms of multi-band compressor allow for soloing, at the band level. This means that you can clearly and accurately select the frequency band you wish to tame by auditioning.

Distortion, saturation, imaging and beyond...

While EQ and compression are arguably the most important elements involved in mastering, there are plenty of other gizmos that can tastefully improve your production

Much like trying to conquer any new production technique, practice makes perfect, and hopefully you'll be starting to listen to your music in a slightly different way; more analytically and from a holistic perspective. But there are plenty of other plugin devices that can help colour your track in a positive way. Some are less applicable, depending on the style of music you're creating, but it's worth considering all things at this stage, as something unexpected might promote a new direction.

Adding distortion

We tend to link the concept of distortion with instruments like guitars. Distortion comes in many shapes and sizes, and sometimes even the smallest amount of distortion has a positive effect on a track.

One such concept relates to the mimicking of analogue tape. Many producers still yearn for the 'warmth' which presents itself to the listener, from music that has been recorded to analogue tape. While the cost of traditional tape-based hardware might be exorbitant, it's possible to purchase plugins which will do a fine job of recreating this classic analogue sound. This enigmatic word 'warmth' is just the human way of describing what we're listening to, but under the hood we're applying a form of distortion. In fact, it's more accurately described as second harmonic distortion.

Distortion comes in many shapes and sizes, and even small amounts can have a positive effect

To add such colour, use a plugin based on a traditional mastering tape machine. One of the most highly prized machines was the Ampex ATR-102; a two-channel, stereo machine that could handle both 1/4" and 1/2" tape, and is still revered today, but at a vintage price! But fear not, as Universal Audio have cloned the machine as a software plugin, available in UAD Format, letting you apply second harmonic distortion, right onto your master. Away from the UA eco-sphere, the J37 Tape plugin, from Waves, also provides vintage distortion and noise, modelled on the infamous Abbey Road J37 tape machine.

Imaging

Imaging plugins can assist in broadening (or narrowing) your stereo image and soundstage. During the mix phase, you'll doubtless have thought about where to place the instruments in the stereo image, using the pan pots available within your DAW. As you reach the mastering phase, the sum of parts created in your mix may not present the breadth of soundstage that you hoped for. Dedicated plugins can assist you in altering this.

Under the category of Imaging, these plugins also provide capacity to centre lower frequencies, while broadening higher frequencies. The net result is a more coherent and grounded mix, that will have a real sense of depth across the frequency spectrum.

Imaging products aren't always available within the included content of your DAW, but help is at hand from companies such as iZotope, who offer Ozone Imager v2 for free, though you will have to register your email address. The S1 Imager by Waves provides a paid imaging solution, with some helpful graphics to illustrate the application on your mix.

An additional pair of software ears

As the concept of mastering has filtered down, from the professional sphere to the bedroom DAW setup, a multitude of products have become available to assist you with your mastering conquests, while also adding that

iZotope Ozone Imager: if your soundstage isn't quite as expansive as you'd like, imaging plugins can help to widen your perspective

IZotope's Ozone: A full suite of mastering plugins, complete with automated and adaptive mastering facilities

helpful second pair of ears, should your home monitoring not be quite as you might like. Some packages are designed to operate outside of the DAW, while others are designed to be initiated on the master bus of your DAW's mixer.

One of the most highly recognised packages of its kind is Ozone, from iZotope. You will find aspects of everything we have discussed within the Ozone suite, but also find other generous included modules, which will help improve your sound further. Ozone exists in a number of package sizes, designed to suit all budgets, with the top package affording the ability to listen to a reference track, and provide a suitable signal chain to mirror the track's sound. It's easy to get swept along by the automation of the software, but it's vital to listen with objective ears, to check that the algorithm has provided you with the best option. You can break out of the chain of effects at any point, altering and editing as you go, until you get your perfect master.

Max headroom

There's one last thing you should consider before committing your final master. Given that you're likely to be mastering your track for public consumption via a streaming platform, each platform has their own requirements for final track levels. As a general rule, this is 1dB below maximum headroom, but you should check with your distribution outlet, as all platforms subtly vary. Hopefully, if you have adequately adjusted your compression, reaching a stable headroom level should not be a problem, but if it is, thanks to our computer-based mastering world, it's very easy to go back and adjust.

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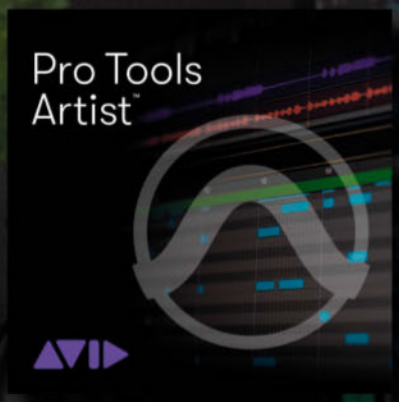

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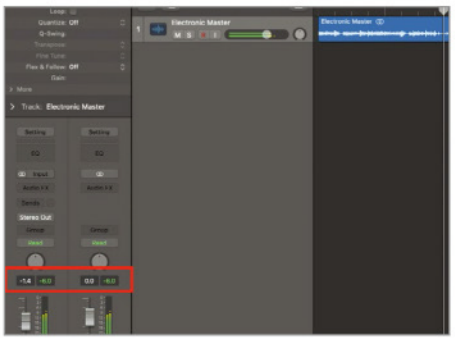
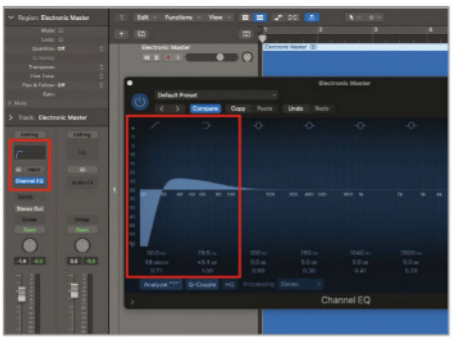
> Step by step

1. Electronic and pop mastering for streaming

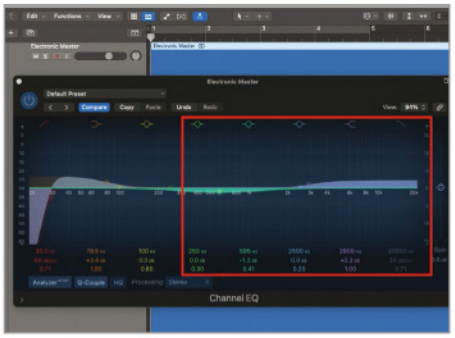


1 > Before we begin to build our mastering chain, it's vital to ensure that we have an appropriate track to work with. The ideal rule-of-thumb is to prepare your mix to a maximum level/headroom of -6dB. This means that your metering should reflect this, once mixed-down and outputted from your DAW.

2 > Import your mix into your DAW, as a stereo audio file; think about the sampling rate you wish to use at this stage. As a general rule, you should aim to keep the sampling rate the same, throughout the mixing and mastering process. 44.1kHz/24-bit is considered to be the baseline standard.

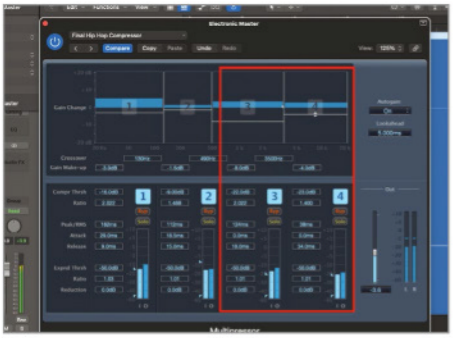


3 > We'll begin the mastering chain with EQ; plug in a multi-band EQ and listen analytically to your track. We'll start by subtly increasing the low end, to taste, while placing a low-end shelf at around 30Hz, to prevent extreme rumble. Being a commercial track, it will benefit from increasing your low end, around 80Hz.

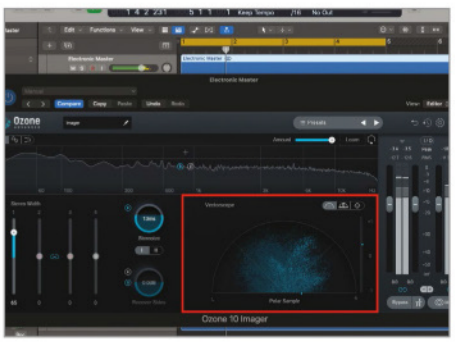


4 > Next we'll brighten the top-end; add a subtle increase to the high-end frequencies, which will help add presence to the snare and hi-hats in the track. Listen as you apply this; don't over-cook it! You can also add a scoop in the mid frequencies, to help highlight the top and bottom ends of your frequency spectrum.

5 > The second component of our mastering chain involves compression; if you have one, try a multi-band compressor. This will let us further analyse and compress the elements that we've equalised in the last two steps. Listen, using Solo (if available), to target the low-end area to be compressed.



6 > Now listen to the upper frequency bands; you may find this easier to adjust without soloing, as you want to hear how the mid and upper registers behave within the context of your track. You can adjust the levels, along with your equalisation, to ensure that any brightness doesn't take its toll on your ears.



7 > We can widen our stereo image considerably; our example offers a relatively narrow stereo soundstage, which we can enhance via a suitable imaging plugin. You can see the increase in width, displayed on the Imager's display. Beware of widening too far, as the result may weaken the overall effect.

8 > As a final element, we could consider adding a saturation effect. Being an electronic track, we want to keep the signal relatively clean and sharp, so listen as you apply, to prevent the application of too much grit to the signal. Our example here uses a basic amp simulator, which we can blend into the dry signal as desired.

9 > Now we've built a nice signal chain, A/B the results against your original unprocessed mix, to check you haven't driven the mastering too far. Once happy, bounce the Master out of your DAW. For streaming, deliver a final master 1dB below headroom. Allow time at the start/end of the track to avoid truncating your music.

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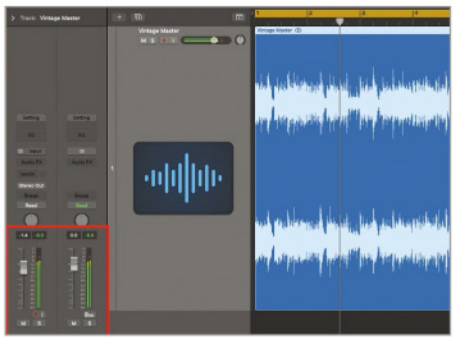
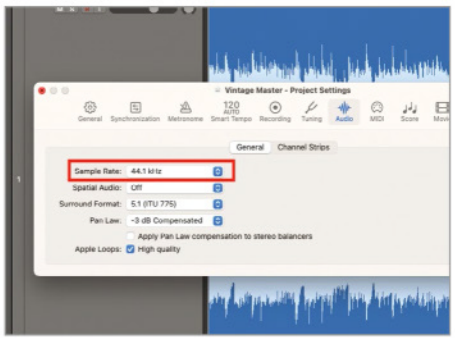
> Step by step 2. Vintage and guitar-based mastering



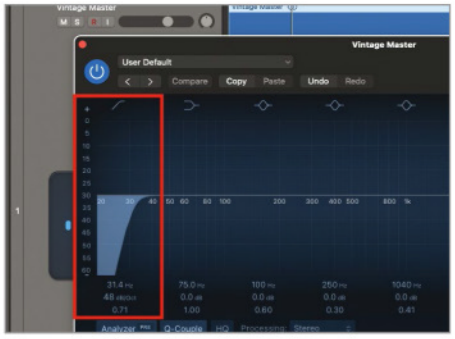
1 > During the mixing process, prepare your track so that its peak does not exceed -6dB. This is pretty essential for ensuring that you can take maximum advantage of any applied compression, as part of the mastering process.



2 > Import your final mix into your DAW. For computer/CD playback, ensure you have the correct sample and bit-rate settings. Set your DAW to play back at a sampling rate of 44.1kHz and a bit rate of 16-bit. You can also work at 24-bit, and your DAW can dither the bit-rate down to 16, if you want to send for CD pressing.

3 > If you have one available, plug in a multiband EQ plugin (multiple single-band EQ plugins may drag out the process). You could also try a vintage-style EQ plugin, like a Neve or Pultec-modelled design. These software emulations will add colour to the sound, which is ideal for rock or guitar track mastering.

4 > As our track contains guitars, we want to bring out some of the lush inner frequencies. We'll use our vintage-style EQ for this effect, boosting the frequencies at around 700Hz. Listen and analyse, as the desired frequency point for boosting will rely on several factors, such as style of playing, register, and even key.



5 > Returning to our more commonplace, multiband EQ plugin, filter the very bottom end of the master, to prevent any unwanted rumble, which we might not be able to hear with our domestic monitoring. Apply a low-end cut-off at around 30-35Hz.

6 > We'll apply a single compressor channel, across the entire mix. Using a basic compressor from within your DAW, you may be able to take advantage of a classic or vintage-style of compressor sound. Begin by adjusting the threshold, while listening and observing the amount of compression being applied.

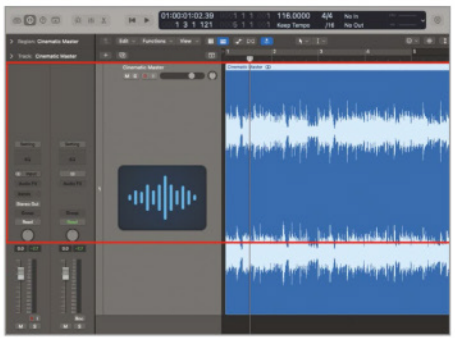
7 > If your mix begins to 'pump' as the compression takes effect, back off the threshold and ratio amounts, and use the Make Up gain to add headroom to your outputted signal. Classic-style compressors can change frequency content, particularly in the low end. You may have to compensate with EQ.

8 > To fully embrace a vintage sound, with this style of mastering, using some form of saturation would be exceptionally beneficial. Try a tape saturation effect, such as the Universal Audio ATR-102 plugin. You can make many adjustments to degrade the signal, for that classic sound, while also adding machine noise!

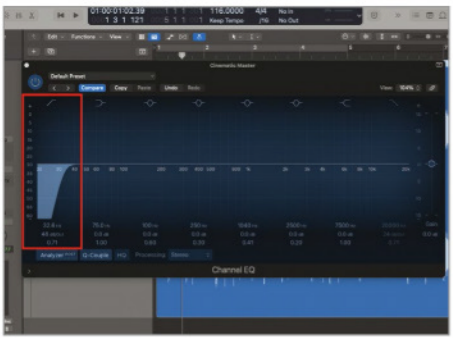
9 > Finally, adjust your output headroom, so that you're peaking at -0.1dB below maximum output. This is particularly important if sending your master for CD duplication, but also provides efficiency if just played back as a file on your computer. Maintain sample rate and bit-rate settings, when exporting the audio.

> Step by step 3. Mastering for picture

1 > As mentioned, our mixed track needs to be ready for the mastering process. The track's headroom should not exceed -6dB, but more classically orientated music may be quieter. Resist the temptation to digitally alter the gain structure of the track, as this may introduce sonic artefacts into your master.

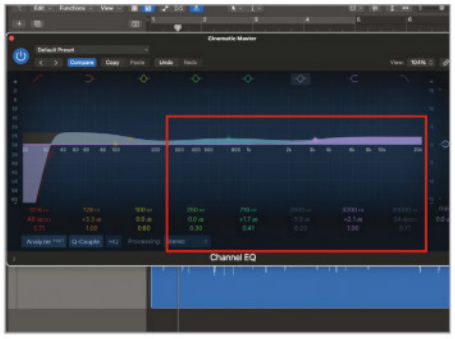


2 > Begin with a fresh and new audio track within your DAW, and import your stereo mix, ready to begin the process of building your mastering chain. As we're going for a cinematic feel, we will try to keep the signal path relatively clean.

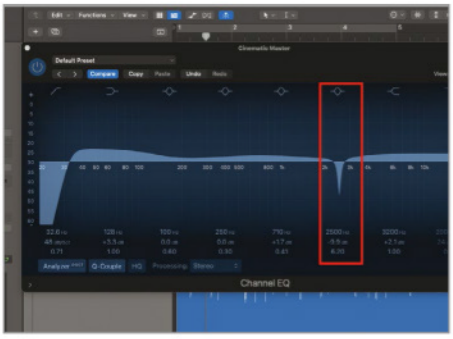


3 > We will use a standard DAW-based multiband EQ plugin, and begin to listen to our track analytically. Beginning with the bottom end of the master, we can introduce a low-end filter, to prevent any 'rumbling' making it to our master. Set a low-cut to a frequency of around 30-35Hz.

4 > Our track contains strings and piano, alongside a subdued, pulsing set of drums. Cinematic asters often require an increased lower frequency band, so we can assist by boosting the lower end from around 200Hz downwards. Be sure to listen as you apply this boost, so that you don't over-exert those bass frequencies.



5 > The violins will benefit from a slight boost in the upper frequency band – adding a silky quotient to the overall master. Depending on your own track, you may also find mid-range frequencies which may benefit from a boost. Always be sure to listen as you apply, and don't be tempted to push the boost too far.



6 > Our strings and piano in combo reveal a harsh frequency at around 2.5kHz. As ever, we can reduce the effect by applying a very narrow cut, at the precise location of the overbearing frequency. You can apply the same technique wherever you hear a resonant frequency that seems to leap out at you.

7 > We're going to apply a DAW-based imaging plugin, which will widen the sound stage for frequencies above 300Hz. This will give the result of the bass instruments sounding centred, while the upper frequencies fan out to great effect, creating space in our mix.

8 > For a relatively clean master, we could choose to leave saturation out of the master chain; however string samples often benefit greatly from the addition of a small degree of distortion. Note that most of the signal remains dry, with a small degree of processed coloration, just to warm up the master.

9 > In a twist to our usual mastering chain, we've placed a compressor at the end of our chain. This lets us control levels, for a headroom of -0.1dB, while maintaining a relatively constant signal, appropriate for a cinematic track. As a rule, tracks for video or film are delivered at a 48kHz sampling rate and 24 bit rate depth.

14 software mastering tips

Here's our hit-list of top tips for mastering mastering!

01 LOCATION AND SETUP

It sounds incredibly obvious, but looking after your working environment and setup will not only make mastering easier, but most likely produce better results. Ensuring that your ears are right between your monitors, in the sweet spot, means that you can make slight and minute adjustments in mastering, and hear your every alteration. Learn from the professionals; that is the only way they will toil.

02 LISTEN ELSEWHERE

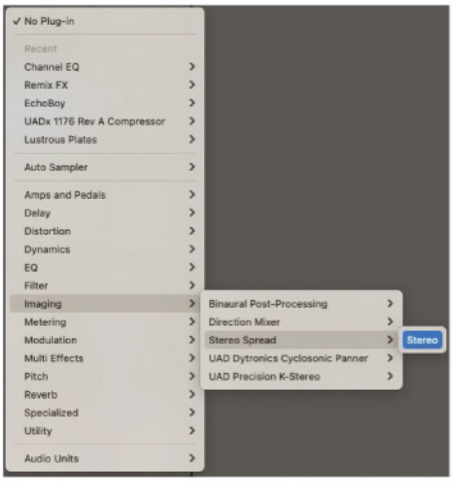
Once you have a mastered track, try listening on other speaker and headphone formats. Many devices these days provide a trademark sound, which is gratifying in both high and low registers. These devices can really highlight issues with your master, particularly in the lower end, so take your master away from your studio, and listen in the kitchen, car, lounge or even on TV.

03 LISTEN

It's very tempting to master music using your eyes, but you really shouldn't. What do we mean by this? Don't rely on the visuals on screen. The fact that a meter might be behaving in a certain way, on screen, does not necessarily mean that this will translate to the sound you want. Always listen, first and foremost, and inform your decision on what you hear, not the numbers that are on view.

04 EXPLORE YOUR DAW'S PLUGINS

All DAWs ship or download with an incredibly large amount of content. The chances are, you have everything that you need to successfully master your productions to a relatively high standard. This is fantastic if you're working on a budget. Make your main DAW package work for you, before you buy anything else.



Mastering using only your DAW's included tools is an acceptable option

05 STOP THAT NOISE!

The vast majority of mixing and mastering engineers do not work with music at terribly high volume. In connection with fatigue, the louder you play your music, the shorter the amount of time you're likely to be able to work, at least in any objective way. Lessening your monitoring level will create a more comfortable working environment. If you can get your track to sound good at a lower volume, it will sound amazing at high volume!

06 A SECOND PAIR OF EARS

Invite similarly minded friends to critically listen to your mastered tracks. They will have a different set up, and another view on your mastering tactics. It's no coincidence, that often professionals will get other people to master their work, and having a second pair of ears on hand, to provide constructive feedback, can be really helpful to the ultimate cause.

07 TAKE REGULAR BREAKS

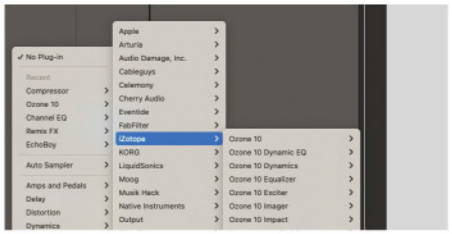
Just like muscles in the body, your ears can get tired and fatigue over time, especially when they're being subjected to continuous amounts of music. Every mastering engineer will have their own best time of day to work, but it stands to reason that your ears will be far fresher first thing in the morning, than they will be last thing at night.

08 MASTERING PACKAGES

If you really get the mastering bug, there are also bespoke mastering packages and solutions that will provide even more appropriate tools than those found in your DAW. These do come at a higher price, but they will undoubtedly make a real difference to your productions.

09 ON THE THRESHOLD OF MASTERING

If you struggle with the acoustics presented to you within the room that you work in, consider standing back from your setup, as far away as the doorway or threshold of your room. Often, the sum of frequencies which are presented to you by standing in this location, can be really helpful to gauge exactly how much bottom end you have in your track, in particular.



If you've got a bit of extra cash, look outside your DAW for bespoke options

10 THIRD-PARTY PLUGINS

If there is a particular aspect of a mastering plugin, which you feel your DAW does not present to you, have a look around for some third-party effects to plug the gap. Many companies provide wonderful solutions, particularly for sonic colouration and imaging. Just one more plugin could make a real difference to your master.

11 LISTEN AND ENJOY

If you're not getting the mastering results that you hoped for, shut down the computer, and come back tomorrow. This is music we're talking about, and it's supposed to be an enjoyable activity. If it's not working for you one day, the chances are it will be better the next day, so give your ears a rest and come back fresh in the morning...

12 HIRE A PROFESSIONAL

If you have something that is particularly noteworthy, musically speaking, consider employing a mastering professional. They'll have many more tricks and tools of the trade to call upon, beyond those that you'll find within your computer. Armed with this level of sophistication and artistry, you'll hear how far you can fall down the mastering rabbit hole.

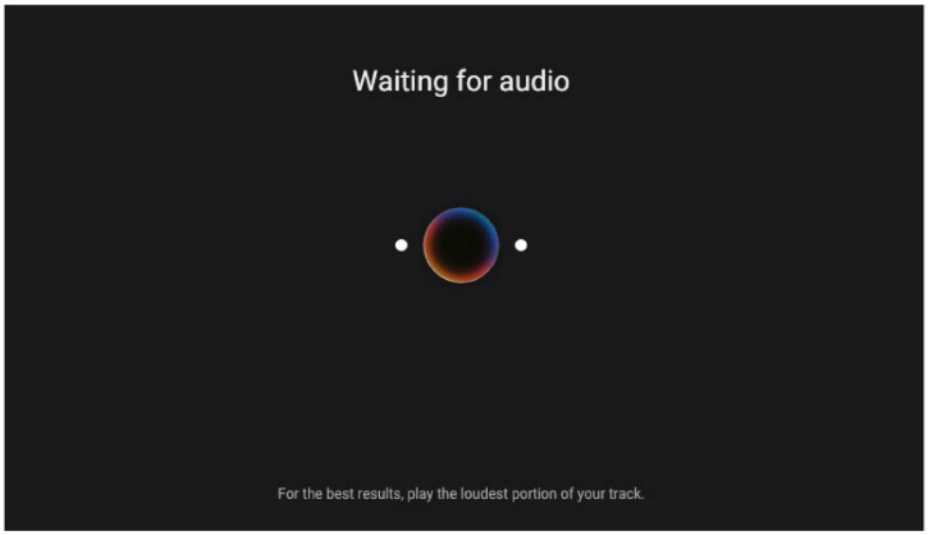
13 DON'T TRUST AI

Some bespoke packages employ clever tactics to analyse your tracks, presenting solutions and signal chains to improve the overall sound of your work. Just because the algorithm tells you it's better, trust your ears, first and foremost. You can always tweak to achieve a more satisfying result, geared to what you want, and not what the algorithm thinks that you want. **cm**

The beauty of the modern age is that even within one plugin, different 'skins' and modes exist

14 EXPLORE VARIATIONS

While many DAWs come with lots of on-board plugins, there'll often be variations of each plugin type. You may have a choice of compressor, or EQ style, some of which may be rooted in a classic or vintage sound. Depending on its style of music, it has to be worth exploring, doesn't it?



AI may be increasingly impressive but it doesn't mean surefire accuracy

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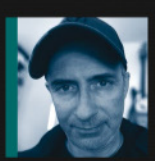
Synth Masterclass
with *Dave Gale*

38 Creating an ethereal glass pad

Dave Gale teaches you how to make your pads sparkle in a tasteful way, with the help of the Zebra CM synth



Mix Masterclass
with *Jon Musgrave*

42 De-essing vocal tracks

Jon Musgrave continues his masterly mix series; this time he advises on how to get s-s-savvy with a de-esser

#30

Download the accompanying video and the MIDI/audio files at **bit.ly/cm325downloads**

Creating an ethereal glass pad

If you need a pad that shimmers but doesn't get in the way of your mix, the ZebraCM is on hand, and it's sounding ethereal!

Dave Gale

Dave Gale is an Emmy award-winning media composer, producer and orchestrator, with an enormous passion for synthesisers, in all their forms. His varied composing style embraces everything from full orchestral and hybrid scoring, to fully electronic scores, employing synths wherever possible. He also happens to own some of the finest synths in existence but we're not jealous, OK?

Let's face it, we all need pads! Once you've addressed your drums and bass in your mix, the chances are you'll find yourself turning to pads to help bolster your track's harmonic core, while adding interest to the sonic spectrum. The problem is, pads often get a bad rap, and for good reason...

Many of the impressive-sounding pads which we have heard over the years have acquired something of a date stamp, and nothing exemplifies this more than the glass pad. Thanks to its sharpness of sound and resonant colour, it doesn't do itself any favours, as it immediately conjures imagery of dated soft-rock tunes, performed by musicians with mullets! You'll be pleased to know, this is not where we are taking a trip with the ZebraCM today, but we are going to take the concept, and create something altogether more subtle and with a degree of timbral undulation.

While these more ethereal glass pads have arguably never gone away, it's useful to know how to control the harmonic content. This can be achieved at both the synthesiser filter level, or with heavy equalisation, leaving a pad which should blend into many forms of production styles. We'll draw some musical inspiration from the likes of applauded electronic musician and producer Chicane, while not getting too glassy and overbearing in the process.

> Step by step

Creating an ethereal glass pad

1 > Let's begin by initialising a patch on the ZebraCM. Open up your DAW and load up the plugin. Once the plugin window is open, move to the central display at the top of the window, click to reveal the drop-down menu, and select 'init' from the bottom. This will initialise the patch.

2 > This patch is going to be a relatively loud one, so now would be a great time to reduce your master volume to a level of 30. Just as a reminder, every time you tweak a pot or setting on the plugin, you will see an accurate value/numeric in the upper display.

3 > We will start to craft our sound by turning our attention to OSC1. We want to adjust the waveform to a value of 11.00, which we will also need to reduce in volume, to a value of 45. To create a wider stereo image, adjust the pan pot to a value of -30.

4 > To further enhance OSC1, we can activate four aliased voices, by clicking on the number 4 in the upper left hand area. This will thicken the texture of OSC 1 considerably, but only once we have adjusted the Detune pot, which we can set to a value of 6.

5 > Now we can turn our attention to OSC2, which will adopt some similar characteristics. Firstly, adjust the waveform to a value of 3.40. This is another relatively complex waveform, which we need to reduce in volume, to a value of 74. We can also adjust the pan pot, to a value of 30, which will nicely counterbalance OSC1.

6 > We'll refine the settings of OSC2, but applying aliasing here too. Select a value of 4, before adjusting the detune pot to a value of -3. While OSC2 is largely mirroring OSC1, its selected waveform is more dominant, thanks to its harmonic makeup and increased volume.

Download the accompanying video and the MIDI/audio files at **bit.ly/cm325downloads**

> Step by step

Creating an ethereal glass pad *(continued)*

7 > Alongside the oscillators, this patch is going to utilise white noise to add some wispiness to the overall colour. Increase the white noise level to 37. Ensure that you have white noise selected (it's the upper-left icon) and adjust the Lowpass pot to a value of 72, and Highpass pot to 74. The filtering will prevent the noise form being too overbearing.

8 > Now we can move to the filter section. We're going to use a bandpass filter in this patch, which we can select from the filter drop-down menu. Select the BP RezBand filter, which also adopts a resonant spike, alongside its bandpass traits. Adjust the Cutoff pot to a value of 95.

9 > Keeping within the filter section, adjust the Resonance pot to a value of 6. We are also going to apply some LFO modulation to the filter's Cutoff, which we do by reassigning the user-assigned pot to LFO2, using the drop-down immediately below the pot. Once assigned, set the pot to a value of 3.

10 > We only require the use of ENV1 for this patch, as we only need to control the amplitude, or volume of our sound. Set the Attack pot to a value of 72, Decay to a value of 57, the Sustain to 68, and finally the Release to 47. Being an ethereal pad, the attack and release phases are relatively slow and generous in time.

11 > Moving to the LFO section, ensure that you have LFO2 selected, which should be highlighted in turquoise. You can adjust the rate of modulation to suit your track, by using the Sync drop-down menu. We like the idea of allowing a modulation cycle over one bar of music (in 4/4 time) which you can achieve by selecting 1/1.

12 > Finally, adding some back-end effects will really help this patch. Try using a chain which begins with compression. Then add a delay, followed by a relatively generous and bright reverb. We're using examples here from Fabfilter, Soundtoys and Eventide, but DAW-based effects will do a perfectly good job, too!

PRO TIP

EXTENDING CHORDS AND MIXES

Some of the earliest synthetic pad examples were created using machines such as the Mellotron, or String Machines such as the legendary Solina. As the music tech at this time was very firmly in its infancy, pads were larger than life, occupying the full frequency range of a mix. As the technology has developed, our ability to combine, blend and mix tracks together has largely become something that we take for granted, working with many tens of tracks within the confines of our computers. This is where a pad can be of huge benefit while mixing. It occupies a much narrower frequency band to its historical brethren, so can nestle in the upper-mid and high frequency spectrum, without causing mix problems. This is also helpful should you choose to adopt a similar musical stance to a producer such as Chicane. He has a tendency to use extended chords; these are chords which add notes above the basic triad, sounding fuller, richer and with a hint of jazz. With more notes comes the risk of clouding the mix, so our helpfully defined pad will assist by keeping textures light.

The iconic Mellotron (top) and Solina String Ensemble (above)

Chicane: lover of pads

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RECOMMENDED LISTENING

CHICANE
HIJÖPING
This recent release from Chicane adopts his classic style, with hints of ambience
bit.ly/cm_hijoping

MASSANE
NO RETURN
This beautiful track uses an even more sparse pad to support the reflective piano chords which play toward the front of the mix
bit.ly/cm_no_return

Download the accompanying video and the MIDI/audio files at **bit.ly/cm325downloads**

De-essing vocal tracks

Unresolved sibilance can cause problems later. Here are various ways to get it sorted in a snap

Jon Musgrave

Jon is a London-based platinum award winning mixer, producer, composer and club remixer with a diverse CV that spans dance, pop, rock and music for media. He's also a long term contributor to *Computer Music*. Jon usually handles final mixdowns, which is why we've got him to share some of his pearls of mixing wisdom here...

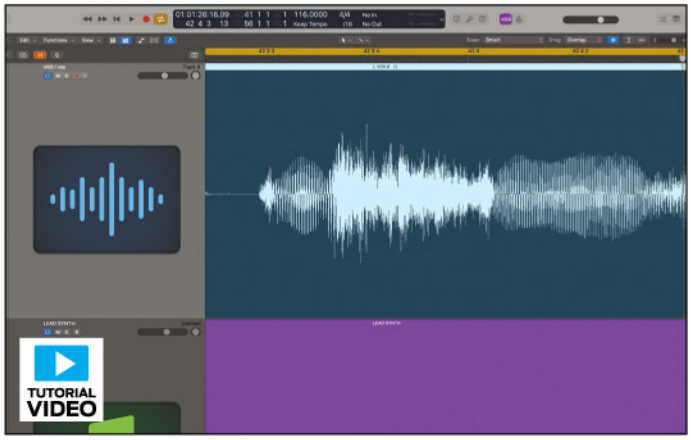
De-essing is the process of reducing the sibilance in vocal recordings. These bursts of high frequencies are primarily produced by the letter 's' (hence the name), but can also be created by 't' and to some degree 'f', 'sh' and 'ch'.

Sibilance is at its worst when close miking and there are various tips and tricks you can use to reduce it at the recording stage. Nevertheless, here we're focusing on mixing and we'll assume you have some existing sibilant vocals that need sorting out.

Often when you first hear a vocal, the sibilance is not that obvious. However, once you start compressing it or boosting higher frequencies to add air and sheen, the sibilance gets magnified and becomes a problem. If we don't address it at the mixing stage, it can be very hard to reduce transparently during mastering, and if you're mastering to vinyl, unresolved bursts of high frequencies can cause distortion when cutting the master lacquer.

In this masterclass we'll look at different approaches to sibilance including understanding and using de-essers, applying manual level correction and also the interaction between sibilance and reverb. Of course, these harsh frequencies can also be present in other instruments such as cymbal crashes, and we'll finish up with a look at how we can use the latest de-esser processors to remove harshness from these. Right, let's get to it...

> Step by step De-essing vocal tracks



1 > First up, it's important to appreciate what we're dealing with and to be able to identify the relevant audio. Sibilant sounds often fall at the beginning and end of words and if you zoom in on the waveform, they are usually easy to spot as they feature a region with a tight high-frequency waveform.

2 > Let's start with a traditional de-esser plugin. There are no rules about where you place the de-esser. Position it before compression and EQ and you can set it and forget it. However, EQ and compression can enhance the sibilance, so placing it after those can be wise with the proviso that settings may need tweaking as the mix progresses.

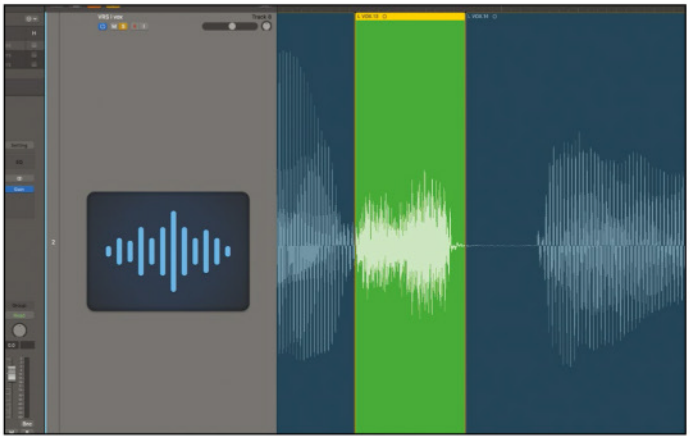
3 > Despite their task specific design, de-essers are quite flexible and powerful processors. Familiarise yourself with the key aspects of your plugin, such as the threshold, the sidechain listen option, the frequency selector and sidechain bandwidth. To get started find an area of sibilant audio and activate the sidechain listen.

4 > Listen back and use the frequency control to focus on the area you want to process. Unlike hardware designs, most software de-essers allow you to sweep across a broad range of frequencies, selecting quite accurately the problem area. For us this is about 9kHz, but keep an open mind as frequencies are performer-specific.

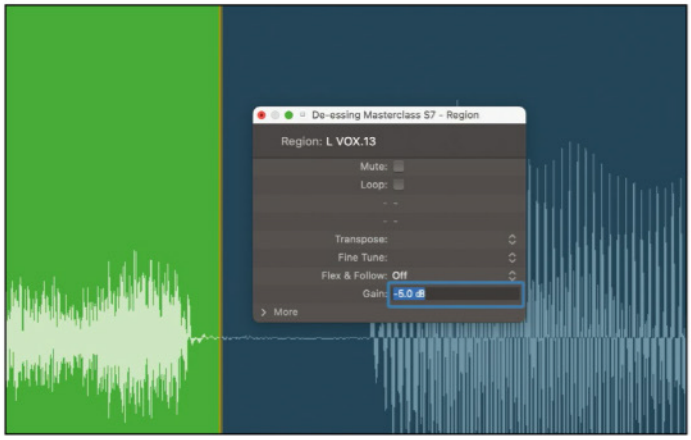
5 > We've already mentioned the sidechain bandwidth and this setting is fundamental to how a de-esser behaves. Typically you will have a high-pass and band-pass option. In high-pass mode the de-esser will respond to everything above the threshold. In band-pass there will be a more focused response at and around the selected frequency.

6 > Select your desired bandwidth option then exit the side chain listen mode and adjust the threshold to taste. Sometimes we find that when we listen in context we want to swap modes and adjust the threshold and frequency for a more aggressive outcome. Once again, keep an open mind, choosing settings that work best in context.

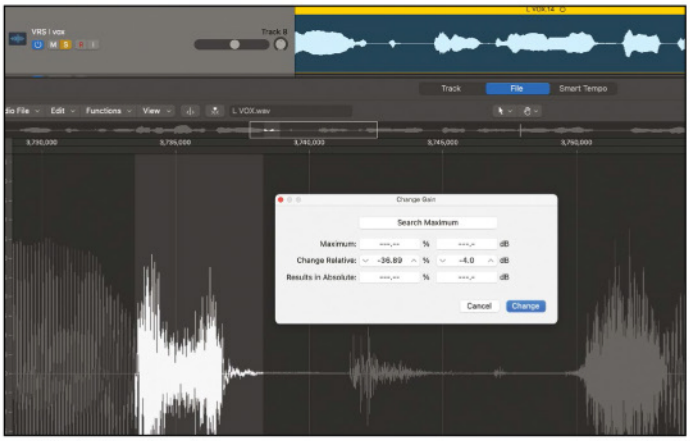
> Step by step De-essing vocal tracks *(continued)*



7 > De-esser plugins offer a blanket response that's okay for general treatment but they can be tricky to finesse. A more precise technique is manual level adjustment. As mentioned the frequencies are easy to spot on the waveform. Here we've marked out an area to resolve.



8 > If your DAW supports clip-specific gain adjustment, then it's easy to quickly adjust the level of just the sibilance. What's more this adjustment is non destructive so if you need to tweak things later you can. Work your way through the vocal and make gain adjustments to taste based on how bad each section of sibilance is.



9 > If your DAW doesn't have non-destructive clip gain you can still use this technique, it just means you'll have to make changes to the original audio file. Here we've demonstrated this using the file editing option in Logic Pro, once again highlighting sections of audio and applying suitable gain changes.

10 > Of course, this process can be pretty painstaking, particularly if you have multiple vocals to process, and certainly for backing vocals and double tracks you may make marginal gains. Often the best option is to use manual level changes to correct the worst sibilance alongside a regular de-esser plugin to curtail less offending examples.

11 > De-esser plugins are frequency-dependent dynamics processors. However, some of the latest software plugins finesse this design to deliver more precise or natural results. If you do a lot of de-essing these are worth investigating. Examples include SSL's DeEss and Techivation's T-De-Esser Pro.

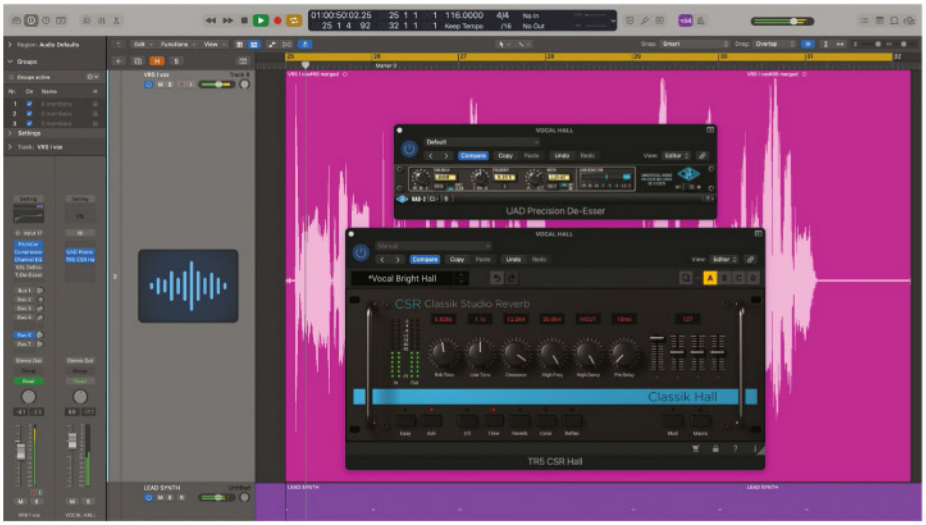
12 > Finally, one great advantage of more advanced de-esser designs is they're flexible enough to remove harshness from many sounds. Here we've loaded up the SSL DeEss to process the overheads from our drum kit, then used the filters to carefully focus on a harsh mid range, setting the Threshold and Amount to control this region.

PRO TIPS

DE-ESSING AND REVERBS

Often we achieve the desired level of de-essing on our main tracks but still run into problems when we add reverb, with the reverb almost amplifying those annoying frequencies. There are various ways we can address this, including choosing a different reverb, filtering the tail of the reverb within the plugin or simply by inserting an EQ after the reverb and filtering the high frequencies.

If these options seem a bit too drastic, and assuming your reverb is routed via an auxiliary bus, a more focused solution is to de-ess the auxiliary send to the reverb. In your DAW, the simplest way to do this is insert a de-esser in the slot before the reverb plugin. Apply the same techniques as the walkthrough to identify the correct frequency area, and adjust the de-esser threshold accordingly. This technique offers quite a transparent solution and is particularly helpful if your vocal is bathed in a glorious bright reverb. Even so, the de-esser is level dependent and so any substantial changes in send levels during the mix may require adjustments to the threshold. Finally, it's always worth considering the bigger picture and accepting that at times, enhancing the sibilance with reverb can be an artistically desirable effect.



Kylie's delivery on *Padam Padam* is sharp, slick and sibilance-free

RECOMMENDED LISTENING

KYLIE MINOGUE
PADAM PADAM
If you're going for a crisp, hyped mix like this, keeping sibilance in check is vital
bit.ly/cm_padam

GEORGE MICHAEL
A DIFFERENT CORNER
There are always exceptions and George's sibilant vocal and reverb combination became a signature sound
bit.ly/cm_differentcorner

CHRIS LAKE

Landing in the UK still buzzing from an extraordinary Coachella set, and the recent release of the pumping, Aluna-guesting *Beggin'*, we seized the rare opportunity to speak with DJ and modern house titan Chris Lake, and find out more about his epic 20+ year journey as a music-maker, his label Black Book Recordings and get his viewpoint on the industry's latest innovations...

> For many readers, Chris Lake will need little introduction. The Norwich-born DJ, producer and artist first achieved recognition in the mid-2000s with the single *Changes* featuring Laura V. After a rapid-fire assortment of increasingly impressive collaborations, his high-profile work with deadmau5 on the album *4x4=12* garnered Lake a Grammy nomination. From then on, Chris's star rose meteorically, with record-busting remixes of tracks such as Jess Glynne's *Hold My Hand* and Calvin Harris and Disciples' *How Deep Is Your Love* reaping tens of millions of streams globally. All the while, Chris displayed a Midas touch when it came to writing modern house classics, such as the mighty *Boneless* (with Steve Aoki), *Turn off the Lights* and the mesmerising euphoria of last year's *In The Yuma*.

We met the now LA-based Chris Lake in London, during a rare trip home. We're happily

bemused to find that this globe-straddling mega-star is himself giddy about the prospect of being interviewed by *Computer Music*. "When I first got into music, I was picking up *Computer Music* off the shelf every month. It really helped me learn and understand what was possible, and what was available for making music. I remember the magazine grew off the back of the possibilities of the first seeds of the DAW. It's funny how I remember some of the old cover features and those artist interviews still stick in my head."

It's clear, then, that Chris Lake started out as *one of us*, as he nostalgically reflects on a much simpler time. But down to business, and the first topic on our agenda is the mind-blowing Coachella set that he performed with long-time collaborator Fisher: "Ah, it was intense. There was a lot of work involved. I actually felt a lot of responsibility honestly. There was a lot of thought behind why we were doing that set and why we were doing that show. There's been this real growth of house music, particularly in North America."

Chris explains that a little bit of tech-terraforming had to take place to prepare the stage. "One of the reasons we were booked for that show was that we wanted to see if that kind of music would work, on that kind of size crowd and on that type of stage. Coachella is a multi-genre festival, but those kinds of stages are really not set up for what we do. So, we had this opportunity to go in and bring our vibe and experience to that stage. It wasn't a case of just setting up the decks to play music. We put a lot of time, effort and thought into how we could accurately create the experience we wanted on that stage. We brought in a lot of production, we had our own sound tech. We re-amped all of the speakers specifically for our set. We had a very different sound set-up compared to everyone else."

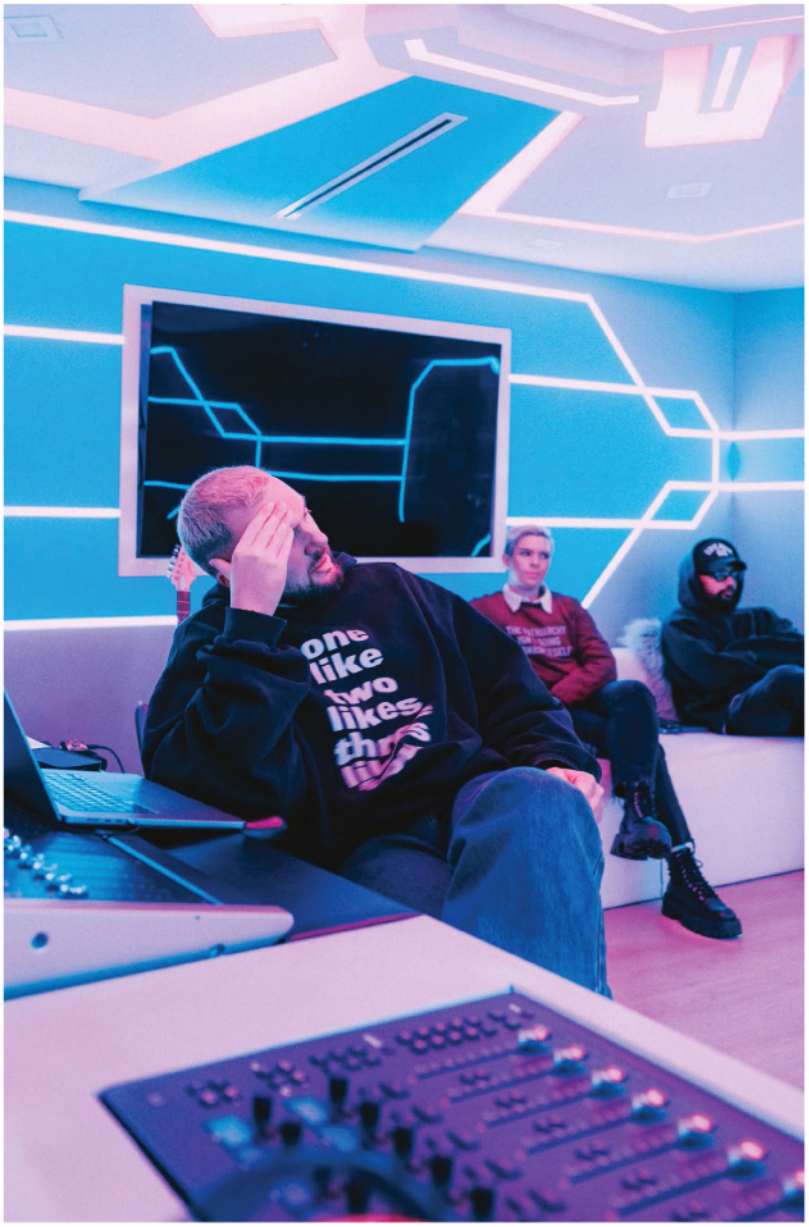
The amount of work that Chris, Fisher and the team undertook was extensive. "The programming of the lights was complex, we set up lights on the delay towers to create depth for the lighting. They were basically set-up and stood there dormant for the whole weekend until our set at the very end. We went to a lot of lengths to make something special, and take advantage of the opportunity that we had to play to that kind of audience. It really worked and really connected. People felt the difference so we're very proud. It was probably one of the most stressful things I've ever been involved with, but it worked out really well."

> "America is interesting because dance music started there. It was killed off there as well..."

Laying the groundwork

A track that Chris regrets not including in the Coachella set is the recently released *Beggin'*, a slick slice of booming house-pop that resulted from a collaboration with Aluna (of electronic duo AlunaGeorge). We ask him how the track originated. "I knew the AlunaGeorge stuff. I work with a great team of people around me and I'm always asking if anyone has any good ideas of people that would be good to collaborate with. Her name came up and I thought, 'fuck yeah, let's do this'. Someone arranged a session for me, but it was actually quite embarrassing because I messed up the days and she turned up at my door. I was a bit confused, then I was so embarrassed."

Once apologies had been said and ice had been broken, a hypnotic new track started to come to life. "The starting place was the low end. I'd made the low-end for an edit of another track I was working on. When you try to go with the flow of a session – especially with someone you've only just met – you don't necessarily want to go 'cool, I'm just going to go off and shape a kick' or start messing with bass patches. You don't want to waste those hours laying the groundwork. For me I find it's easier to think



Photos: Andrew Jorgensen

Photo: Mauricio Santana/Getty Images

about things I've been working on recently. In Ableton Live, I love the feature of being able to open up the project and then using the browser, dragging in individual tracks from other ideas. I dragged in the kick and the bass of another project then re-wrote the bass. That was the start of *Beggin."*

We wonder if Chris has been an Ableton Live user since day one? "It's been a long time! But I wasn't a first user. I got into music around the late '90s. The first DAW that I used was Sonic Foundry's Acid, I then moved into Reason and then to Logic, and then, finally, Ableton Live. Live is my language now."

As we discover, it turns out that Chris's setup these days is largely in-the-box, a result of the studio-denying realities of travelling. "Honestly, there was a moment about seven or eight years ago where I realised I was spending a ridiculous amount of time on the road. I started to feel paralysed when touring. I felt like I couldn't do anything when I was away from the studio. I realised that I had to teach myself how to make music when I was out and about. I kind of forced myself into being uncomfortable. I taught myself how to make music on a laptop and nothing else. How do you teach yourself that?

> "I can make 80% of my music anywhere – in a noisy environment or in a busy room"

Well you just have to accept that you don't have your studio monitors, a MIDI keyboard and all the other home comforts. But this is what I do have. It was like going back to the initial constraints that I had when I first started making music. Using a Roland MC-505 and standalone controllers. The magic of music back before everything you've featured in *Computer Music* has allowed us to do."

Chris explains more about how relying on just his laptop, sans even headphones, allowed him to perceive his tracks differently. "I actually started making music just listening with the laptop speakers, using just the QWERTY keyboard instead of a MIDI keyboard to put in notes. Now I'm really good at it. I can make 80% of my music anywhere; in a noisy environment or a busy room. I feel like I understand the sound of the laptop speakers and I've even released music that I've only monitored on laptop speakers."

Chris is making a strong case for being the most literal 'computer' musician we've ever met. "I made my track *I Remember* in my parents' living room. I didn't even listen to it on headphones. I finished it, rendered it out then played it the following night in Moscow. It was one of the best-sounding records I'd ever made. I ended up listening to it on monitors a couple of weeks later to check the final mix, but I hardly changed anything since that first laptop mix. It sounded fantastic. Don't get me wrong – on the super low end it's definitely pretty difficult to be accurate – but, on that occasion, I fluked it and got it right.

"I've realised that when I'm in an acoustically treated room with great speakers you hear much more of the finer detail. The benefit of using non-producer-grade speakers is that you listen to the overall 'track' more, and can get a feel for the overall composition and the idea."

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Vibe-catching

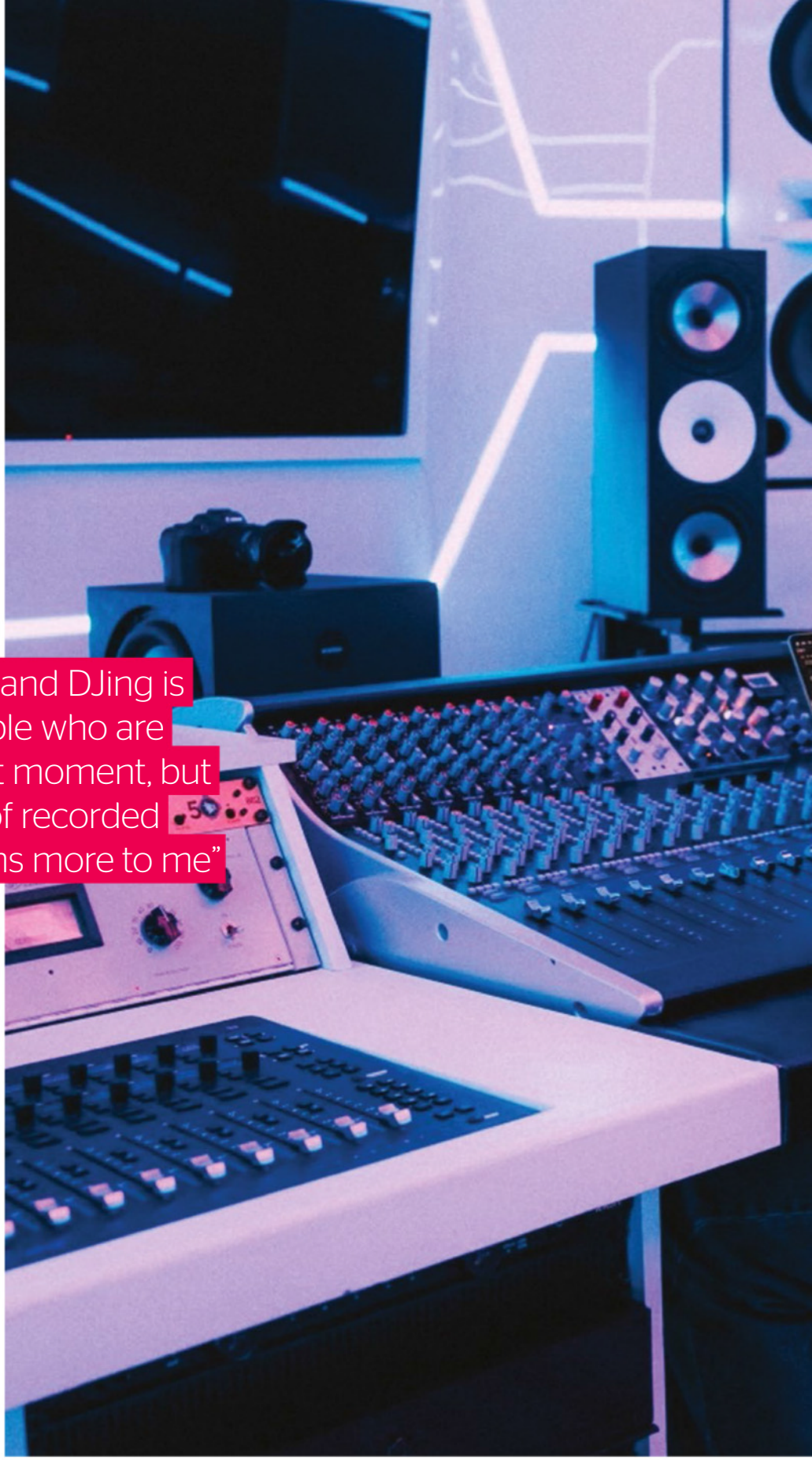
As Chris told us, the foundation of *Beggin'* was the low end, and that led us to wondering whether that's typical for most tracks. "Yeah, I often start with a groove and drums, but it really depends. I just try to catch a vibe anywhere, something that clicks. I have loads of ideas on the go, I just do little sketches here and there. I normally make an idea, save it, do a clip of it then maybe come back to it a few days later. The power of this is that I end up making lots of individual little ideas and find combinations of sounds that I like. Again, I love using Ableton Live's ability to drag and drop between projects. Often I'll be working on another idea, then I'll remember I liked a kick and bass combination, so I'll drag that in. It's quite a modular process. I find it quite creative."

In terms of go-tos, Chris swears by popular monolith Omnisphere, as well as a few other choice soft synths, "I really like Spectrasonics' Omnisphere, that's kind of like a ROMpler in a way. It's really powerful, I love the waveforms, it's a versatile tool for building your own synths. I love Native Instruments' Massive and I love Lennar Digital's Sylenth still. Synplant (from Sonic Charge) is something I really like, too. It's an organic synthesiser released around 10 years ago. It's weird, but I actually used that for the lead on *In The Yuma* It's got such a great sound."

> "Live music and DJing is for the people who are there at that moment, but the power of recorded music means more to me"

Despite the giddy euphoria of the live experience, nevertheless Chris doesn't hesitate in stating that the studio is his favoured place to be. "My career really stems from the work that I do. I love recorded music – I think it's so powerful. Shortly after I started getting somewhere with my music, I remember having a moment where I was laying in bed on a weekend I wasn't playing and being like 'there's probably a lot of people dancing to my music right now'. As I'm sleeping, the work that I've done is having an effect. That idea always made me feel really great. In the back-end of Spotify, there's a tool where you can see the number of people listening to your music in real-time. It's incredible. Knowing that thousands of people are playing your music as we're speaking is a powerful thought. Live music and DJing is for the people who are there at that moment, and that's got its own power and its own significance, but the power of recorded music I think means more to me. Overall, I'd consider myself more of a producer than a DJ."

We wonder to what extent Chris is plugged-in he is to current developments in electronic music, and how much that affects his production process. "I always think about how to keep yourself fresh. I think it's good to listen to new music up to a point, but I actually don't listen to that much of it. It's very easy to be coloured and tainted by it. For me, I have a constant fight of trying to stay as the core influence of my own music. I don't try to follow trends, but I try to think about what I can do to influence trends!"



Back to black

Chris's record label, Black Book Records, isn't just an outlet for up and coming electronic artists; Chris also adopts a mentoring role with many of the signed artists, sharing his wisdom on both production and navigating the wider industry. "I've got loads of involvement. I love it, I have a great team as well, it's a collaborative process. I like to help guide artists and give advice on things I think would help them musically. It's not just that though, there's so much more to being an artist than just making music these days. There's other aspects. We get involved with artists that we believe can go on to have strong touring careers as well. There's things that don't necessarily get seen or acknowledged that are difficult about doing that. I've got quite a lot of experience with that

so I tend to end up guiding artists through those issues." We give Chris the chance to share with us a few acts on his roster that he recommends we give a listen. "The main ones would be Cloonee and Miane – both good starting points. HoneyLuv is great. Then there's Seb Zito. All of which are well worth checking out."

Chris has been a long-time resident of LA, and shares a deep knowledge on the evolution of America's dance music culture: "The story in America is interesting because dance music really started there. It was kind of killed off there as well. There was lots of legislation and demonisation of raves that really killed off the scene. It killed off the foundations of what kept the scene alive. In the 2000s there wasn't that much stuff going on. In 2003, [then Senator] Joe Biden created this thing called the 'RAVE Act' which did a lot of harm, it demonised the genre and implied it was all linked to drugs. It blamed the scene. It really affected it."

"Over time, it softened and [early 2010s] EDM re-opened those doors to America, it all felt quite new in a way. People who were 18 when Skrillex dropped his first EP will now be 31; tastes evolve. The support structure around the scene has grown. There wasn't even that much

"I genuinely believe that huge benefits are going to come from AI – but it needs regulation"

electronic music journalism in North America 13 or 14 years ago, but that all grew around the EDM era and it evolved. That hasn't dissipated, so there's a stronger foundation for the scene as a whole. There's more access to the scene and to the music, it feels really, really good. It's quite forgiving and quite open. That's the big difference between America and Europe – that support structure has been in Europe for 30-plus years, whereas for America I feel like it wasn't there in the same way."

Art or artificial?

A couple of years back, Chris collaborated with Grimes on the track *A Drug from God* , which was launched via Grimes' 'AI girl group' named NPC. With AI an omnipresent talking point right now, we wonder if Chris feels that the encroachment of AI into the music industry is going to ultimately prove beneficial or prove to harm artists even further. "I'm a technologist, and I love the possibilities of what technology can bring. I've always taken the stance of embracing the potential benefits of what things can bring. I'm still trying to hold on to that with AI because I genuinely believe that huge benefits are going to come from it. But it *really* needs regulation. The possibilities are scary. The ways it can be abused are far beyond what most people understand."

Chris continues: "I hope that the true human touch can bring about something that ends up feeling beyond anything AI could ever bring. It might end up understanding me and my music better than I do. I see it sometimes. I've seen videos of (human-created) track breakdowns, explaining how they've been made. Some of them are so fucking good, they're explaining what I'm doing, and sometimes it's stuff I didn't realise I was doing. I had no idea I was doing that. But someone understood it on a deep level. Maybe AI can figure that out, too."

A terrifying thought, perhaps, but as our time comes to an end, it's Chris Lake's contagious enthusiasm that reminds us of the pure uninhibited joy that you can find yourself in when producing music. Even with the success that he's already achieved, it's clear that he still feels that same excitement for music-making as he did when picking up this very magazine off the shelf at the start of his journey.

For more info on Chris Lake's newest releases, head to www.chris-lake.com

HEAR MORE

Chris Lake, Aluna, *Beggin'*
bit.ly/cm_lake_beggin

Chris Lake (ft. Aatig), *In The Yuma*
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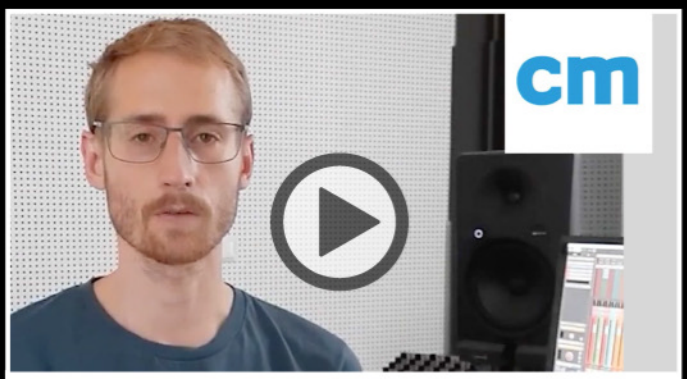

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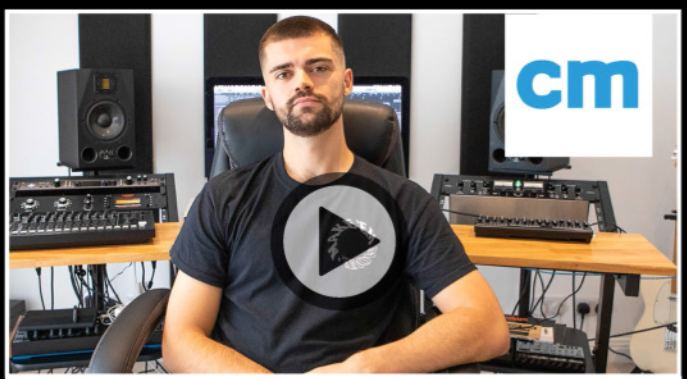

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58 EASTWEST HOLLYWOOD FANTASY ORCHESTRA STRING & BRASS

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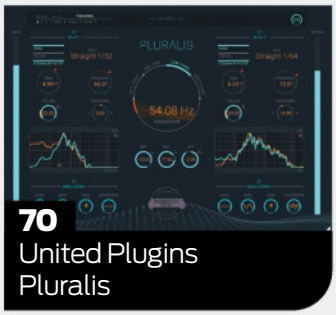

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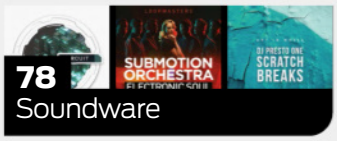

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EastWest
Hollywood Fantasy Orchestra – String and Brass Sections

$399/$149 PC MAC

Magic awaits us in this new orchestral library, as we prepare to be transported to another world via the back of a wardrobe, or Platform 9¾!

> When it comes to orchestral and cinematic sample libraries, EastWest's catalogue is pretty formidable. Their Hollywood-styled sounds embrace orchestral, vocals, world and even rock and pop, with some formidable technologies, such as Word Builder, which allows the user to get a sampled choir to sing an inputted lyric.

Fantasy islands ahead

Having provided the industry with some of the finest orchestral sounds around, some years ago EastWest decided to place more emphasis upon their spiritual and literal Hollywood home, with a series of Tinseltown-inspired packages, adopting soundstage acoustics and a leaning toward the cinematic. These packages were quite a hit, but did leave us begging the question, 'where next?' The answer, it would appear, would be their new and unraveling Hollywood Fantasy Orchestra, which is being released over a series of months, one section at a time. At the time of writing, we've been exploring the String and Brass sections. The question is; do they cast a spell?

It's unwise to think of HFA: Strings and Brass as direct competitors to usual orchestral sample libraries...

Hollywood Fantasy Brass supplying low-end brass with aplomb!

Amazing fantasy

The first unavoidable conclusion, which unravels relatively quickly, is that Fantasy Strings should not be considered a replacement for your more conventional string library. You can pretty much work this out from the instrument cohort, which is substantial, but far from the string section norm. EastWest make no bones about this, as they highlight that certain instruments have been adopted, not so much as a replacement, but to act alongside.

Instead of first violins, three Hardanger fiddles occupy the top slot. An instrument which originates from Norway, these fiddles have a very pure sonic identity, which is instantly familiar. Their folk-like tendencies are perfect for Celtic lead lines, while their noticeable lack of vibrato enforces this purity. It is much the same sort of story in the lower echelons of the string section, where the cellos have been swapped out for three Viola Da Gamba. These also adopt a stable sonic character, originating from the baroque period, where it was unfashionable to play with vibrato.

There is something very stunning about the overall sound of these two instruments in combination, and while they might not be to the taste of all, there are doubtless occasions when they will prove their worth, particularly in lead or soloistic settings.

If you yearn for more traditional string incumbents, EastWest do provide you with suitable alternatives. Eight violins and six violas have been sampled in octaves, providing a more traditional and thicker texture, as an upper string colour. The bottom end range of this patching only extends to the note C, in tune with the lowest note of the viola, and not the low G of the violin. On a similar tack, EastWest also provide six celli and four basses, in octaves, mirroring the top end of the string section.

Curiosity shop

Where the fantasy elements begin to expand, is with the inclusion of some real curios. The first of these is three hammered dulcimers; an incredibly underexploited colour, perfect for providing texture to a cinematic cue. There are also three lutes and two different incarnations of hurdy gurdy.

One undeniable point is the sheer volume of content represented in sampled form. Quite apart from the substantial instrumental selections, the articulation quota is huge. Taking a case in point, the dulcimer samples are split into three sections; Long, Effects and Keyswitch. The Long articulations account for 10 different styles of playing, ranging from single hits, to sustained tremoloes and repeated notes. Regardless of the nature of your music, this range of articulation should have you covered. This ethos extends throughout the entire string library, although the more we unravel, the less we might think of this as an out-and-out string package.

Apart from Fantasy String's cinematic, game and trailer-music tendencies, it's the purity and closeness of the samples that engages us the most. You do have EastWest's usual collection of microphone signals available (namely close, mid, main and surround) and plenty of round-robin triggers where you need them. There's capacity for editing to suit your cause, but these samples adopt the trademark EastWest sound,

It's the perfect companion to more traditional libraries, particularly for those leaning toward the composition of cinematic, orchestral or gaming scores

Through the new Opus interface, accessing and adding patches is a blissfully simple process

with a relative brightness and capacity to cut through a mix, just when you need it.

A little humanity

Following the lead of the String section, the Brass volume offers four sets of instrumental samples, along similar lines, but arguably less disparate.

The most abstract of the set is represented by three Alpenhorns; traditionally associated with German and Swiss folk music, these instruments are instantly recognisable by their long conical horns, which extend way out in front of the player. There is a characterful and unrefined quality to these samples, as three instruments are layered, providing plenty of humanistic detuning. It's likely that the Alpenhorns will be most useful for devices such as drones, but in tune with brass instruments which play very low in register, you might find the drone to be a little unpalatable and uncouth!

However, the remainder of the brass content nicely complements our more traditional brass libraries. Flugelhorns are a very popular instrument, which bridge the gap between the trumpet and French horn sections. Also recorded in groups of three players, there is an endearing mellow quality to the samples, which provide a beautiful sonority, when you don't

The ComposerCloud+

EastWest were one of the first companies to offer a subscription model, which has now been adopted by many others in the sample and virtual instrument marketplace.

The ComposerCloud+ option requires a degree of explanation, but could completely revolutionise the way that you work. Once signed up to ComposerCloud+, you gain access to the entire EastWest sample library collection. This not only includes orchestral libraries, but cinematic libraries, thundering drums, reflective pianos, stunning vocals, and a broad array of world sounds, as well as effect plugins, such as their renowned Spaces II convolution reverb. The beauty of this concept is that you gain access to thousands of pounds worth of samples, from the moment you sign up to the subscription. This arguably represents an incredible deal, and exceptional value for money. As with all subscription models, this only remains the case if you are regularly using the sounds, and certainly one thing that EastWest cannot be accused of is not providing good quality content.

The remainder of the Hollywood Fantasy Orchestra is being released in sections. Upon release you will have instant access to these libraries as part of your subscription plan. If you are a student, there is also educational pricing on ComposerCloud+, allowing top-end content, on the tightest of student budgets!

want the brashness of a bright trumpet section. By a similar token, the Wagner Tubas straddle the void between French horns and trombones, with a similar sense of sonority. Traditionally, played by French horn players in certain symphonic settings, these instruments have become very popular for certain forms of dramatic scoring, and will prove useful alongside traditional brass instrumentation.

In line with the string edition, EastWest also provide a tutti low brass contingent, made up of trombones and tubas, but playing in unison rather than octaves. At higher volumes, the brightness can become a little overwhelming, as raspiness enters the sonic fray. This has become a popular colour, in certain cinematic settings, but will probably require a considerable degree of compression to keep under control.

Final opus

As we mentioned from the outset, it's unwise to think of Hollywood Fantasy Strings and Brass as direct competitors to the more usual orchestral sample libraries, particularly ones from EastWest. The included content, across both library sections, will bolster commonplace instrumentation available elsewhere, but provide a helpful breadth of different colours that can add to the composer's toolkit.

The requirement for these libraries to use EastWest's Opus sample player will significantly add to the enjoyment factor. The general layout and navigation of Opus is a firm step up from their previous Play sample player, providing easy and instant access to all samples and articulations, both in individual and key-switched forms.

Due to the make up of many of the included instruments, dynamic range is nowhere near as extensive as it might be in more traditional libraries, and in some instances, you might be left asking whether there is any dynamic control at all. This is really dependent on the instrument you choose to work with, but there are some nice tricks available, such as the ability to alter bowing, through the use of the modulation wheel, while using the Viola Da Gamba sample.

Hollywood Fantasy Orchestra represents a new and exciting volume of samples, that will be the perfect companion to more traditional libraries, particularly for those leaning toward the composition and production of cinematic, orchestral or gaming scores.

Web www.soundsonline.com
Info Also available as part of the ComposerCloud+ subscription, from $19.99 per month). Educational discounts available

Alternatively

Cinesamples Viola Da Gamba
£144
Purity and dynamic control in a single Kontakt instrument

Orchestral Tools Metropolis Ark 2
From €22
Brass sonority, recorded at quiet dynamic levels and available to purchase as individual instruments

Verdict

For Stunning alternative collection of mystical and imaginative sounds
Ideal complement to more orthodox orchestral libraries
The ComposerCloud+ option is very cost effective

Against It's not for everyone, and less valuable without orchestral library support elsewhere

The Strings and Brass are both absolute winners. EastWest have created another rich repository of lush, tailored instruments

8/10

Brainworx
AMEK Mastering Compressor $399

PC MAC

If it transpired that God's own compressor was the basis of Brainworx' latest AMEK-branded plugin, we wouldn't be surprised

Although Brainworx's first pair of Amek-inspired plugins, the bx_2098 EQ and bx_console 9099, are based on specific original Amek hardware, the subsequent AMEK EQ200 and AMEK EQ250 plugins have no direct relationship with past Amek glories. Instead, they are a more general melding of the characteristics – and circuits – of vintage parametric EQs that are particular favourites of Brainworx' head honcho, Dirk Ulrich.

The company has taken a similar approach with its new AMEK Mastering Compressor. The plugin's circuit models aren't based on any OG Amek hardware but are instead taken from Ulrich's own GML 8900 compressor, a highly regarded and exclusive processor that has never – so far as we know – been modelled and plugin-ified before now. Brainworx has expanded on the original hardware's somewhat austere control panel and added a suite of modern tools and features, and the result is a handsome plugin that doesn't really resemble anything other than itself.

Multiple detectors

Each of the plugin's channels boasts three true RMS detector circuits tuned to be sensitive to dynamic changes that happen over different periods of time. The Slow detector averages the signal over the longest period and is least

Deliciously thick yet smooth low ends, excellent control over transients and peaks, and tons of cohesion

sensitive to transients, Fast measures across a shorter period of time and so is more responsive, and Peak has the fastest response, as you would expect.

A single Timing control determines the length of time over which the Slow and Fast detectors average the signal, which ultimately impacts those detectors' attack and release times, whilst Peak has an instant attack and fixed release time. The response times of Slow and Fast decoders can be linked together using the oddly-named Release Hysteresis control – when the signal is above the RH threshold the Fast timing is used, otherwise the Slow timing takes precedence.

Variable character

Likening this to a compressor you may be more familiar with, this multi-detector setup is not dissimilar to a DBX 165A's two-stage Over Easy compressor and Peak Stop limiter. Unlike the 165A, however, AMEK Mastering Compressor allows the relative influence of each detector to be adjusted, with the compressor's gain reduction being calculated based on whichever detector is being pushed hardest at the time. This provides infinitely more nuanced dynamics control than is offered by DBX's classic.

The actual amount of gain reduction applied to a signal is dependent upon the ratio mode. In soft knee mode the Threshold control sets the level at which the compressor departs from a 1:1 ratio, with the ratio increasing progressively as the signal moves further above the threshold level. This is somewhat reminiscent of a Teletronix LA-2A's natural-sounding progressive compression. Conversely, in hard knee mode a specific ratio is dialled in, running from 1.1:1 all the way up to a brickwall inifinity-to-one ratio, and the threshold control operates by driving the input level into a fixed threshold. This adds a punchy Urei 1176 flavour to proceedings.

Master of mastering compressors

Whilst different to other compressors, it didn't take us long to get to grips with AMEK Mastering Compressor. When we did, and had tuned it to fit various mixes, the results were beyond all expectations.

This is quite simply the best mastering compressor we have ever used. It delivers deliciously thick yet smooth low ends, excellent control over transients and peaks, and tons of overall cohesion and glue, all whilst remaining utterly transparent with not a hint of pumping to be heard (unless you want it!).

AMEK Mastering Compressor has blown away every other compressor in our well-stocked mastering rack... It's just a shame it has to blow such a big hole in the bank balance, too! **cm**

Web www.plugin-alliance.com

AMEK Mastering Compressor's stylish GUI thoroughly modernises the original hardware's rather austere control panel

The three submodules add invaluable features that increase the compressor's power and flexibility

Sub modules

Below AMEK Mastering Compressor's main rack-style control panel lie a set of three additional rack units that add useful features. The first, Detector Activity Monitor, shows colour-coded output traces of the three detectors plotted against the threshold level. This makes it easy to judge not only what each detector is doing, but also which one has precedence at any time (this is reinforced by labels on the graph, and lights on the main control panel). The module also includes an Ambience button, as found on bx_console 9099, which mutes any sound that falls below the threshold so that you hear only the parts of your signal that are being compressed.

Below this lies the Sidechain Filter Module which provides high-pass filter and two bands of peak or low-shelving EQ with which to shape the compressor's response. The final sub module contains a set of features common across many Brainworx plugins: TMT (Tolerance Modelling Technology) channel selection, input and output gain control and metering, stereo balance and correlation metering, low frequency mono maker, stereo width adjustment, VCA clipping control and mid/side mode switch.

Alternatively

Shadow Hills Mastering Compressor Class A
$329
A combo of optical and VCA compressors for dynamic control

Softube Icons Compressor Collection
€299
Three classic compressors that provide formidable mastering

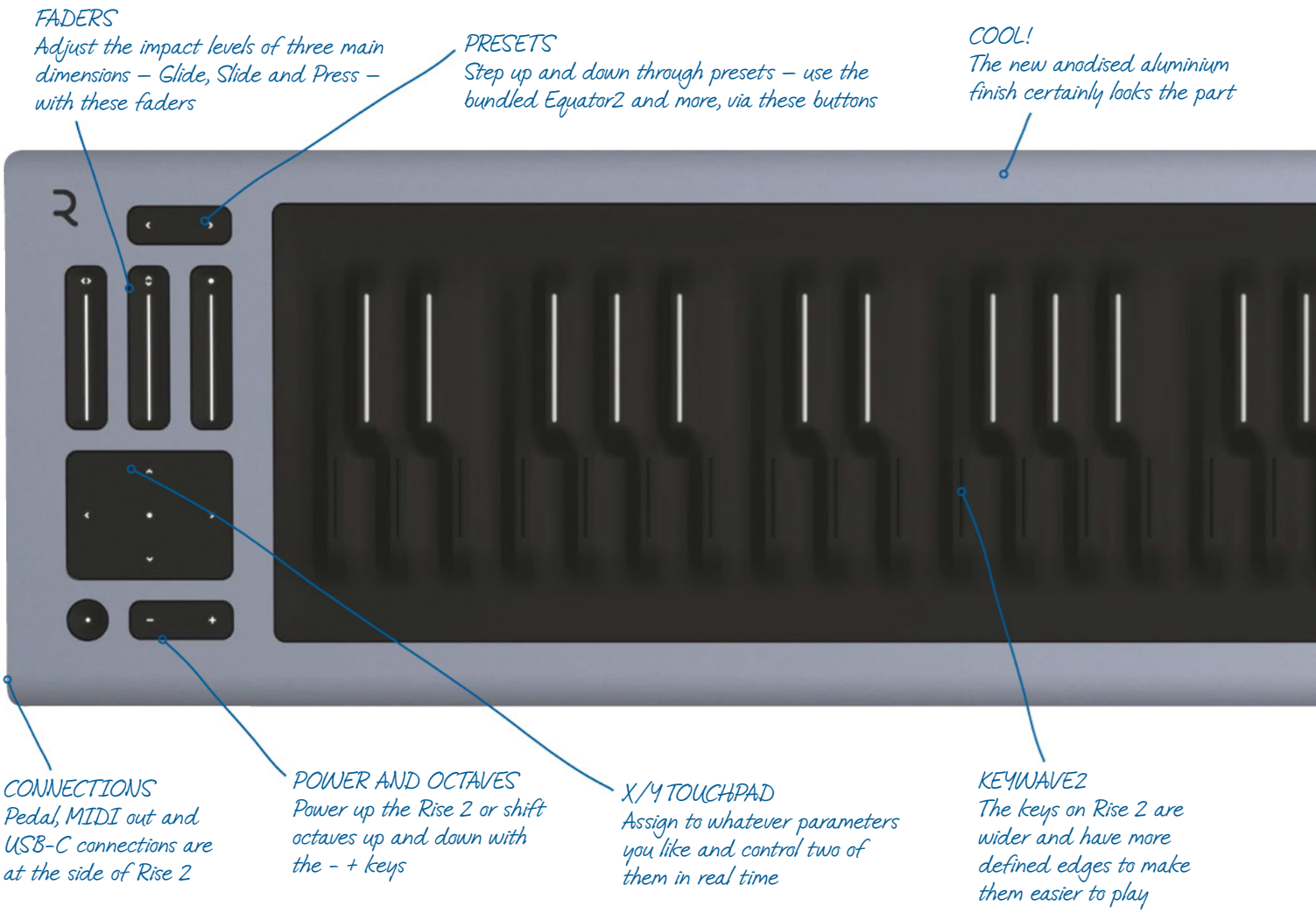
Verdict

For Stunningly good results
Supremely flexible dynamics control
Excellent metering and visualisation
Detailed sidechain filtering for honing frequency response

Against It's rather expensive...

This stunning dynamics processor captures the tone and response of a classic analogue compressor and presents them in an infinitely more flexible package

10/10



ROLI PC MAC

Seaboard Rise 2 £1,099

ROLI's new Rise 2 is a big improvement over the original MPE controller, but are its added extras and dimensions worth over a grand?

> ROLI's original Seaboard Grand keyboard was the first of the company's MPE (MIDI Polyphonic Expression) controllers, utilising a rubber-feel keyboard to explore the many different dimensions of touch that the MPE format offers. The futuristic keyboard introduced these dimensions to a curious public and MPE has since become something of a new norm – standardising these extra control and performance options, and broadly increasing the dynamic appeal of the MIDI protocol.

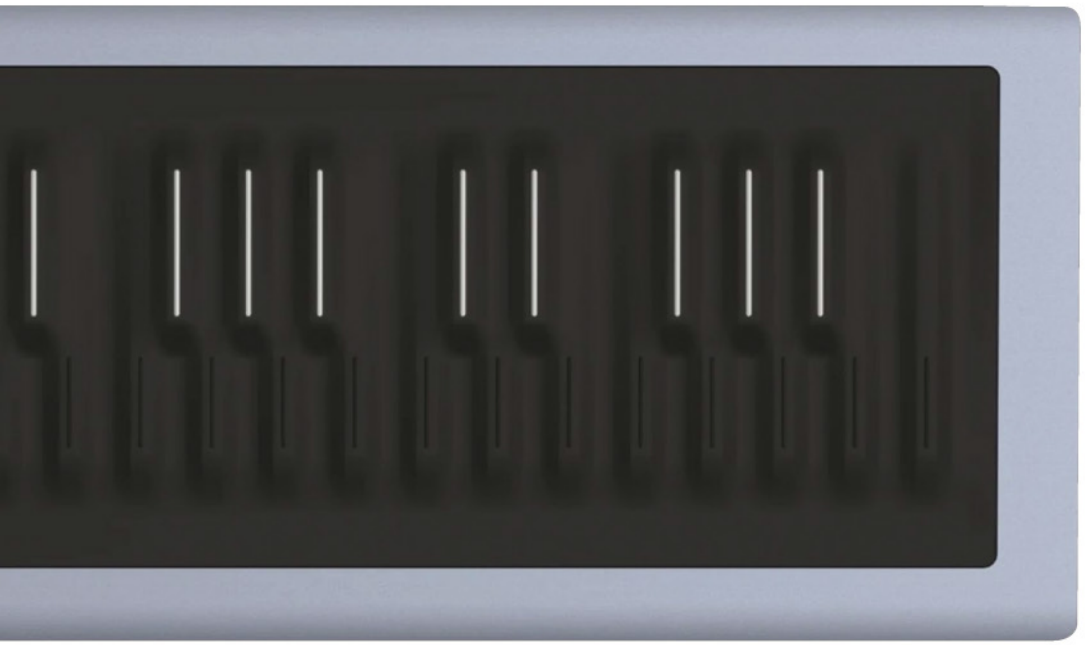
At £2,399, the original Grand was expensive, so the Seaboard Rise was developed as a cheaper entry point, with two versions: 25- and 44-note keyboards plus a smaller Block version. The Rise 2 comes after a tumultuous period for ROLI during which they declared bankruptcy and relaunched as Luminary, although Rise is very much still branded as a ROLI product.

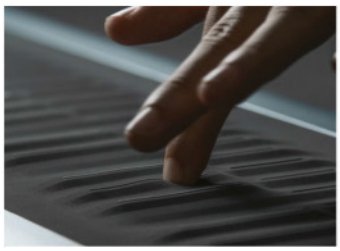
On a roll

It's a shame that ROLI has had that troubled time because we were big fans of the original Rise – it dared to do something a little different and won countless awards doing it. The new Rise is said to be "more intuitive and powerful". It has an all-new silicone surface, using ROLI's Keywave2 keys and the unit has itself been redesigned. It's most definitely a Seaboard Rise – so those who loved the original will be at home here – but feels a lot more 'pro' and rugged, and we love the modern anodised aluminium finish.

One of the criticisms of the original was that its keys were perhaps a little undefined (you could easily press the wrong ones) and it was therefore harder to play it as a 'normal' piano-style keyboard. The Keywave2 keys on the Rise 2 are of a slightly differently shape, wider and include 'precision frets' for extra playability. In practice this makes for a more traditional playing feel if that is what you want, although this is done more by feel than size. It is still sometimes difficult to distinguish keys. The extra dimensions of touch are easy to access, but you don't find you are accidentally exploring them if that is *not* what you want to do!

The extra dimensions still work the same, so you get the following: Strike is the velocity of your finger hitting a key; Press is the pressure applied after a Strike (like aftertouch); Glide is the horizontal movement of your fingers on a





This keyboard – or Seaboard – is a great option to control an increasing number of software titles

Keywave2; Slide is similar but the vertical movement; and finally Lift is the speed that you remove your fingers while playing a Keywave2.

You assign these to any sonic parameters and can then explore added realism in performance for acoustic-style instruments, or unreal avenues when using synthetic soundscapes. All of these sounds are present in Equator 2, the bundled synth (see box below for more). These dimensions really do bring in a lot of extras, although the first two are really similar to the velocity and aftertouch you might already be enjoying with your standard controllers.

Rise again

While there might be a slightly confusing cloud over the future of the 'ROLI' name – or 'Luminary' – MPE technology is definitely here to stay. You can be assured, then, that this keyboard – or indeed 'Seaboard' – is a great option to control an increasing number of software titles, and also be recorded with an increasing number of compatible DAWs.

ROLI have also addressed the biggest criticism of the original keyboard and you really can learn to play this refined model in a traditional way or explore those more expansive dimensions. However, 'learn' is something that you will have to do, and spend time with the Rise 2 to fully appreciate its possibilities. Whether this potential is worth shelling out over a grand for is debatable. Rise 2 is well built, looks great and Equator 2 is a fabulous partner, but as our alternatives show, there are cheaper MPE keyboards out there. It is, then, a meaty update but an expensive MPE option. **cm**

Web www.roli.com

Alternatively

Keith McMillen K-Board Pro 4
$599
Another MPE controller configured more like a traditional keyboard, and a much cheaper option

Embodme Erae Touch
£750
A newer controller that adds a performance element to both MPE composition and control

Verdict

For
- Lovely build quality
- Great, deep software
- More concise playability
- Looks pretty cool

Against
- Expensive
- Needs learning for the full MPE joy

A welcome update to one of ROLI's best MPE controllers, but there are a lot of similar machines now available, with some offering more attractive value propositions

8/10

Equator 2 and more

One of the advantages that Rise 2 has over other, cheaper MPE controllers is its bundled software, especially Equator 2. This long-standing Seaboard partner really does show off all of the controller's MPE capabilities across over 1400 presets. Not all are assigned to the MPE power but it's pretty easy to get in and explore the various dimensions of touch with each sound. And the presets themselves are many and varied. You get acoustic instruments that deliver real – and sometimes unreal – expression. In the right hands (and you may have to practice) you will not hear anything as realistic coming from a computer. Conversely, some of the synthetic sounds are absolute dreams where you can alter dynamics, layers and timbres with the Slide, Glide and Lift of a hand. Equator is rather the unsung hero of the ROLI story and if that's not enough, you also get ROLI Studio (drums and chords), Dashboard (setup software) and Ableton Live Lite included.

Toontrack EZKeys 2

€179 PC MAC

We can all use a little pianistic virtuosity in our productions, and Toontrack's much anticipated update keeps you right on the EZ track

> The piano is a complicated beast! It can be tricky to play well and provides plenty of challenges on the recording front, not to mention the cost of the instrument itself. But EZKeys 2 could get you out of a pianistic jam, while providing you with the unique sound of one of the most coveted pianos in the world.

Talking Italian

The first and arguably most obvious update to EZKeys is the inclusion of a new core library. This is centred exclusively around a Fazioli 212 grand piano, a 6'9" instrument, manufactured by the bespoke piano company, based in Italy. Fazioli have a highly enviable reputation for beautiful European-sounding instruments, with endorsees such as legendary musician, Herbie Hancock. The sample capture of this Fazioli was undertaken at Riksmixningsverket Studio in Stockholm, Sweden. The new core library claims around 4gb of your hard drive, with plenty of pianistic and timbral options available. While only the Fazioli is included at the library's core, Toontrack have captured sustain, sostenuto and una corda pedalling, with a number of classic microphones, all fed through a Neve 8068 console. Unsurprisingly, the Fazioli sounds sublime; it's not entirely pristine in timbre, in part due to the closer miking available from the studio environment, but this is very firmly a positive, as it sounds far more believable and musical as a consequence. There is no mixer page, in favour of three pots, located within the main Keys page, allowing the signals from Hammers, Overhead and Ambience miking to be blended. The Ambience mics provide some excellent interest and colour, captured by a pair of Neumann KM84 condensers, set up in the direction of the control room's glass, capturing a signal rebounding against the window. A basic see-saw tone control is also provided, along with access to onboard reverb and control of the hammer and pedal noise.

Colouring Faz

Being Toontrack, 15 preset piano colours and mixes are provided, along with a series of heavily-effected patches, moving the piano

It's highly adaptable to your way of working, but with enviable results at every turn

away from its normal dwelling place and into more cinematic, contemporary domains. The take-home fact is that Toontrack have sampled one of the most highly-prized pianistic instruments currently available with their usual care and attention to detail. It sounds beautiful, with enough variation in edited presets to satisfy just about all production scenarios.

From MIDI to mix

Apart from the samples, Toontrack have firmly brought EZKeys 2 up to date by including elements seen elsewhere in their product line. The Bandmate facility is available, where you can drag and drop audio or MIDI onto the plugin, leaving EZKeys to suggest ideal pianistic accompaniments for your track. In a similar sense, the Suggest Chords feature will do exactly that, alongside a very healthy contingent of MIDI file content, organised by musical style and genre with clearly defined suggestions for placement within a song. This content is all editable, either by way of altering a chosen chord or through the grid editor.

Standing alone

We love the fact that EZKeys 2 ships as both a plugin and standalone application. You can treat it as a notepad, on its own, building entire song forms within the plugin, ready for export to your DAW, or you can choose to run in Sync with your DAW. You can, of course, simply use it within your DAW in the conventional way, too. That's the strength of the EZ lineup; it's highly adaptable to whichever way of working you're most suited to, but with enviable results at every turn. Added extras aside, useful as they all are, this is a worthy package for anyone who might need gorgeous-sounding pianos. It all sounds very fine indeed, with plenty of fine-tuning tools to help you to the finish line, and even provide numerous routes down the road of inspiration along the way. **cm**

Web www.toontrack.com

EZKeys 2 is rammed full of beautifully performed MIDI content, helpfully organised via genre

Toontrack have spared no expense capturing the sound of the Fazioli

Going all Toontrack

You know how some people are perhaps overly enthusiastic about certain companies? Well, Toontrack are not lacking in the fanbase department, and their users are broad, far and wide, stylistically. This is in no small part due to the Toontrack ecosphere; once you equip yourself with a product, such as EZKeys 2, you gain access to a host of expansion packs which aim to cater to genre-specific requirements. This is the same for their other EZ products, namely EZBass and EZDrummer.

Not only can you build up a hugely expansive library, across a number of rhythm-based instruments, but these products sound insanely realistic. In the case of EZKeys 2, you can expand your library to include 80s Synthwave, Cinematic keyboards, Fender Rhodes and Uprights (and that's just a small sample), all from within the same EZKeys expansion product catalogue. These expansion packs are, however, due to be reversioned, to take full advantage of EZKeys 2.

Alternatively

Plugin Boutique Scaler 2
£59
Scaler 2's ingenious detection system will turn your chords into an authentic-sounding piano part

e-instruments Session Keys Grand S
$99
This package provides phrases that lock in to your DAW-based composition

Verdict

For Brand new core library, featuring a beautifully sampled Fazioli grand piano
Significant microphone options
Very large library of categorised MIDI files
Standalone and Plugin operation
All MIDI is fully editable, within the plugin

Against Nothing we can think of!

A truly superb update to the existing EZKeys package, with the substantial addition of one of the world's finest pianos, in a sampled format

9/10

COMPUTER MUSIC EDITOR'S CHOICE Award

Cherry Audio
Novachord + Solovox

$59 PC MAC

It doesn't get much more vintage than Cherry Audio's latest, as virtual valves are warmed up, and two legacy synths unite in one package

> If you thought Hammond was all about organs, you'd be very wrong. They were also one of the first companies to produce early forms of synthesiser, in an era long before micro-chips and transistors.

The Super-Nova-Chord

The Novachord was quite an astonishing machine; utilising 163 vacuum tubes and well over 1,000 capacitors, it's gone down in history as one of the first fully polyphonic electronic instruments, packed full of vintage electronics which would give your central heating a good run for its money. Weighing in at 500lbs, you'll not be taking one on a pub-gig anytime soon, but thankfully Cherry Audio has lovingly crafted the Novachord into a virtual form.

Despite its limited architecture, the charm of the instrument lay in its purity of tone. The beautifully designed interface provides a tonal construct section to the left of the instrument, with basic modulation controls to the right. Tones are created in an additive sense, by increasing the volume of three individual resonant tones, which sum to an overall wave and timbre. Within this section, there is capacity to deepen or brighten the tone, meaning that it's possible to create impressive pad and string textures, not dissimilar to the string machines which followed many years later.

To the right of the control console there is a basic attack control. This instrument appeared long before the concept of amplitude contouring via ADSR envelopes, so we make do with a simple Attack fader, coupled with an overall volume control. The results are simple but impressive, with slow pad-like fades feeling natural, while perky and punctuated fast attacks sound highly usable. Also included are two

With both included in the suite, it's another extraordinarily cool recreation at a really sensible price-point

styles of vibrato, with pitch depth scalable between small, normal and large. Cherry Audio has also equipped the instrument with room or hall reverb, and a limiter, along with a beautiful set of preset examples.

Going Solo-Vox

Also included with the Novachord is a second instrument; the Solovox used similar vintage technology, but in a monophonic form, and was shrunk in size to fit perfectly under a piano. It was the fashion of the day to play a piano accompaniment with the left hand, while reaching down to play a solo line using an instrument such as the Solovox.

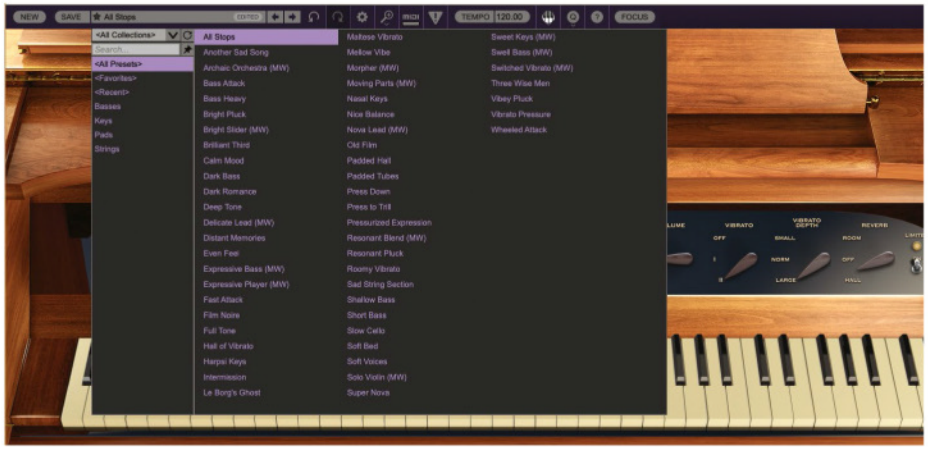
It too adopts a purity of tone, but through the application of 4-tone buttons, labelled Bass, Tenor, Alto and Soprano. With all four activated, it's a weighty tonal construct, which may be simply sculpted using tone controls, to vary deepness and fullness of tone. Apart from two very simplistic tone controls, two further tone controls provide variable band-pass filtering, centred around 400Hz and 800Hz respectively. With a really neat touch, the virtual valves glow, to demonstrate activity. It can sound surprisingly reminiscent of the oft used 'perky' synth patches which have become common-place-pop-fodder, adding plenty of weight in the lower frequency echelons.

Much like the Novachord, Solovox also adopts a simple one-size vibrato, but being monophonic, is perfectly suited to the included Glide, equipped with a pot to alter glide speed. The envelope also moves on a stage, providing both Attack and Release phases.

Vintage charm

There is no doubt a heavy degree of simplicity with these two instruments, but it would be foolhardy to view this as a negative point. You can do an awful lot with these basic forms, and it's the simplicity which will keep you coming back for more. There is more than enough diversity in both instruments to add vintage charm or retro-character to your track, and with both instruments included in the suite, it's another extraordinarily cool recreation at a really sensible price-point. **cm**

Web www.cherryaudio.com



You get plenty of preset inspiration, from string pads to basses

Note the carpet design, straight out of Stanley Kubrick's *The Shining*

From another land, far away!

If you get your hands on this fantastic suite of curiosities, the moment you begin to play, you might start to conjure images of where you may have heard these sounds before. In the first instance, the lessened attack of the amplitude envelope, coupled with copious amounts of vibrato, does tend to produce mental images of sci-fi films from the '50s and '60s. Given the age of the instruments, they are not dissimilar in sound to the Theremin or Ondes Martenot. To our mind, it's the vibrato that plays the biggest role in this familiarisation, and removing will immediately provide something more contemporary, and more useable in a modern setting. Talking of which, many of the more popular 'perky' synth sounds of the last 10 years contain the very basics of harmonic content, so the Novachord and Solovox, with their exceptionally pure sonic characteristics, are ripe for contemporary exploration, within the right production realm.

Alternatively

Sonic Couture Novachord
£119
This Kontakt version of the Novachord provides an authentic recreation of the polyphonic beast

Hollow Sun Novachord
£50
This alternative is also a Kontakt instrument, requiring the full version to get the best out of it

Verdict

For Beautiful reincarnation of some seldom mentioned classics
Polyphonic and monophonic options
Clarity of tone and purity

Against Both instruments have sonic limitations, but this can be celebrated

These two instruments are full of great charm and character. Despite their vintage roots, they have an enormous amount to offer, across many production domains

9/10

United Plugins
Pluralis €79

PC MAC

A delay with a difference? We've heard that before, but Pluralis could well be one of the most creative plugins out there, with twice the appeal

> Because of the wealth of effect plugins you get with your DAWs these days, third party developers are having to think outside the box to keep their wares attractive. Consequently, we're seeing effect plugins becoming more creative, more able to multitask, and just, well, better. With Pluralis, for example, United Plugins/SounDevice Digital are taking the humble delay, doubling it up and processing the two strands in ways not yet seen before. And they might well have struck gold in doing so.

Pluralis has two regular effect engines and you could just use it as a regular double delay plugin should you wish. However, each of the two delay signals can be processed in four different ways but also as a combination.

The four main Pluralis modes are Mid/Side, Left/Right, Quiet/Loud, and Low/High. The last two are the easiest to explain. In Quiet/Loud mode, the signal is processed by the left hand delay while it is below a certain volume (in dB and set by the Crossover dial in the centre of the UI) and processed by the right hand delay while it is above that level. At the maximum volume of 0dB, everything is processed by the left delay. At minimum, everything is processed by the right delay. Get it? OK it sounds complicated but the next mode might help...

In this Low/High the two delays are applied to frequency ranges again determined by the Crossover dial but this time measured in Hz. Everything below the crossover frequency is processed by the left delay and everything above is processed by the right delay.

In the other two modes, Left/Right and Mid/Side, there is no Crossover value to alter. With Left/Right the left delay engine processes the left hand side of the stereo spectrum and the right does the right hand side. Easy! Similarly,

We know what you're thinking: two delay engines, this could end up sounding a mess, right? Wrong...

in Mid/Side, the left handles the Mid and the right handles the sides.

In all honesty, it makes more sense actually listening to the results through headphones rather than us trying to explain it, but take it from us, you will hear the right processor providing different delays from the left hand processor depending on which mode you choose and they do become surprisingly easy to master, and in no time at all.

Messy delays?

Now we know what you are thinking: two engines, each one processing different parts of your signal. That could quickly end up sounding a mess, right? Wrong. With the Sync option engaged on each delay engine, everything stays in time and the delays (usually) sound fantastic and very creative.

It's not always easy to predict how Pluralis will sound and to get you a better idea, it's well worth running through the excellent presets – which we do in the box to the right – to hear how the engines have been tamed by the experts at United Plugins.

And these really do show how creative Pluralis can be. You're going to have to work with it and get your head around the whole splitting up process, but once you do, we think Pluralis could end up being quite the sound design tool. We had it running with Baby Audio's new BA-1 synth, and as good as that is as a plugin, Pluralis utterly transformed many of its sounds into completely fresh soundscapes.

All four one

At €79, Pluralis is a no-brainer when it comes to creative delays. There's little else out there that goes as deep, but that's also as easy to master. Once you have got a handle on the four different modes you'll wonder why all processors don't use them and Pluralis could well become the creative tool you didn't realise you need. **cm**

Web www.unitedplugins.com

The four modes are what separates Pluralis from other delays out there, they're switchable in the centre of the UI

There's a generous set of presets on Pluralis, nicely divided by folders. These are well worth checking out to help you learn how the four modes of operation work with your input sounds

Pluralis presets

While we don't always focus on presets – they are usually there to sell a product and it's always worth creating your own – in this case, the Pluralis sounds are well worth auditioning. You'll hear each of the four modes in action which will help explain the splitting concept if you're unsure about it. There are folders containing 10-15 presets each for the four modes, plus one each with 100% wet mixes, so the sounds can be dramatic and very varied; some of the Left/Right delays sound cavernous, for example. They also often don't do quite what you expect. With the Quiet/Loud folders we were expecting more subtle, restrained delays but while some are, others are totally in your face, bold and brash. And you might start out thinking that Mid/Side processing is for nuanced tweaking, but end up realising it can be anything but that! Overall you can get a massive range of sounds, even within the same mode folders, which demonstrates the huge potential for sound design that Pluralis has.

Alternatively

Fabfilter Timeless
£109
There's little out there that does what Pluralis does, so here's one of the great all-time delays anyway!

Baby Audio Comeback Kid
$49
At the cheaper end of the scale, this Baby Audio delay is both creative and great value

Verdict

For Lovely, clear UI
Incredibly varied sound
Loads of sound design potential
Sync keeps everything sounding great

Against Concept initially confusing

Pluralis is what happens when developers try something a little different and strike gold. It does something little else does, so if you want your sound to go a little off road – or indeed *a lot* off road – get it now

9/10

COMPUTER MUSIC PERFORMANCE Award

D16 Lush 2 £145

PC MAC

One of the most hotly-anticipated softsynths of a decade ago gets an update. But after ten years, is D16's Lush 2 still relevant in 2023? Oh yes

> The original D16 LuSH-101 was released in 2012, then the 30th anniversary of the synth it was emulating, the original Roland SH-101. That instrument has gone down in history as not the most powerful of Roland synths, but a big-sounding mono, with a cute approach – you could strap it on and play it like a synth guitar – and now fetches up to a grand secondhand (although even that is still fairly cheap for an original early '80s Roland). The 2012 D16 was a hotly anticipated release, then, but actually turned out to be eight SH-101s stacked on top of one another – so it could act like a multitimbral synth – each with double the number of envelopes and LFOs, effects and a total voice count of 32. Mm, SH-101? SH-10001 more like...

You could argue then...

... that the original D16 LuSH-101 was way more than a simple SH-101 rehash, and we did. We also said that it took other cues, like its modulation matrix, from classic Roland fare like the JP-8000 and JD-800. But we also loved it: "It combines the design philosophy of the SH-101 with the power of modern synths, sounds beautiful, and proves that great ideas don't go out of fashion. A classic taken to dazzling new heights."

So the question is, after more than a decade, what can Lush 2 possibly add to that? Well, it has apparently moved on so far from the original SH-101 that D16 aren't really even referencing it as version 2, instead just saying that it is "built from modules based on many modern virtual synths". At its core, though, Lush 2 is still an 8-layer synth, but with a huge arpeggiation section, more effects, remodelled oscillators and filters, plus extra controls to tweak. It's now more about how everything is combined

It's several vintage synths in one, with the best of 2023 very much keeping them all in check

Mixers on softsynths shouldn't be this fun packed – hey we don't get out that much these days – but like everything in Lush 2, there's creativity around every corner. Gert Lush. There, we said it

together, and just how creative you can get with the synth.

That all said, it *is* very similar to the original in terms of UI, and the optional colour changes to blue and red, still give it that SH-101 look. In use it's also still very much a multitimbral synth, with layers acting either independently as eight synths on different MIDI channels, or combining into massive performances. You use global presets to mix layers, and can easily select what sounds make up each, and it's very much like an old Roland workstation on that respect.

The best fun is setting up a global preset to have several arpeggiations within it – the arp itself being super powerful with six types and 50 presets – and then modulate the parameters within each one. You can therefore easily set up huge, 8-layer, dynamic synth lines, all weaving around like eight sonic snakes, and all played with a singe note. Sure, you can (probably) do this with other VAs, but not so easily.

And that's scratching the surface. Just think about what those combinations of over 1,000 sounds (and brilliant ones at that) across eight layers can deliver! And the modulation options bring in even more – see the box, right.

Past and future king

Lush 2 is an update to a decade-old synth, itself an emulation on steroids of a 40 year old synth! But let's just forget about the comparisons and enjoy Lush 2 for being a massive-sounding VA with enough flexibility to be the only one you need in your plugin folder. It's eight synths in one, with many creative possibilities to get truly stuck into. If any comparisons need to be made, it's several vintage synths in one, with the best of 2023 keeping them all in check. Still brilliant after 11 or 41 years – you decide. **cm**

Web www.d16.pl

Gert lush

Two buttons on the top of Lush's UI take you to the mixer and modulation area. The Modulation Matrix allows you to assign sources to destinations and edit the amounts of each – easy to grapple with and even easier to get sounds with evolving movement and attitude. The Mixer shown above is even more exciting as you can really get in and edit those Global presets (multitimbral setups, performances or combinations, call them what you will). You can adjust volumes of all eight parts and assign send effects – Reverb, Delay and Chorus – with presets for each. The EQ is cool too. A breakout button lets you fine tune it (we've highlighted this above on channel 3) making the whole mixer experience yet another creative option for you among many in Lush 2. If the original SH-101 did anything close to this, it might be worth that £1000 price tag. It didn't, so isn't. So feel free to send your old Roland hardware synths to the usual *Computer Music* address. We'll dispose of them for you.

Not really an SH-101 any more, but with both red and blue optional UIs, it still has some very obvious nods to its roots

Alternatively

Roland Cloud
$29.99 to $199
You want Roland synths? Get a stack of them here either on subscription or individually

TAL-BassLine-101
$70
Lush 2 has moved well beyond the original SH-101, but here's one of the best straight up emulations

Verdict

For Loads of amazing sounds
Love the multitimbral setups
Easy to use and understand
Sounds massive!

Against If you own the original LuSH 101 you'll have much of what is here

While most of the update is in the fine print, this is still a massive-sounding synth over a decade on and as relevant as ever. Huge, creative and whatever you want it to be

9/10

Orchestral Tools
Peteris Vasks Strings

€549 PC MAC

Proving the point that it's not the size of the orchestra, it's what you do with it, OT's new suite shrinks the string section to chamber size

> The string section is commonly the largest of the orchestral units; you need that many players to balance with the wind, brass and percussion, but sometimes string scoring requires smaller forces, for a more intimate performance. That's where OT enter the frame, with a new package inspired by composer Peteris Vasks, and specifically his chamber string work, which is ironically titled 'Voices'.

Three desks good!

Vasks Strings is a deeply sampled chamber strings library, offering all of the usual articulations, with a host of more unusual 'gesture' articulations, providing some new and enticing colours for the string palette.

Let's deal with the forces first. The main library is sampled from six first violins, five second violins, four violas, four cello and three basses. The sample capture was performed by Sinfonietta Riga, who are an acclaimed Latvian performing ensemble. This is important, as players that work together regularly are more likely to yield a better performance, which will result in better ensemble work across the group. Sample capture was undertaken in the beautiful surrounding of St John's Church, also in Riga, with both close/spot miking and an Omni Tree arrangement. As a consequence, the overall capture may be beautifully blended, achieving the perfect balance between a close signal, and the church ambience. It's perfect, for an ensemble of this kind. There is a healthy degree of purity in the sound, although things can get emotive and expressive, when they need to.

Performance control is limited to dynamic volume and channel expression, with the level of vibrato weaving in with the dynamic level. There is also patching, which provides less of

Each first chair is sampled as a solo, and sounds sublime

an emotive feel, if required. It can sound quite traditional and baroque at times, while the dynamic volume can induce some stirring phrasing, on demand.

Whispering legato

Within the main ensemble patches, there are considerable options across the board; staccato and marcato patching is accompanied by tremolo and trill patches, with harmonic, sustains, and tremolos, too.

There are also a couple of levels of sustained sampling, which also link with the legato patching. The initial Sustain + Legato patch demonstrates the strength of legato and purity of sound. There is however an elephant in the room, and it will be no surprise to anyone versed with legato performance. The degree of latency in the legato patching is considerable. According to Orchestral Tools, this was by design, as it was felt that the legato was improved, by way of an overall construct. This leads to the inevitable pre-delaying of string lines, within the DAW, in order to achieve performance synchronisation. The overall effects are impressive, but tracking parts with this level of delay does present something of a challenge.

Even smaller forces

Alongside the ensemble patching, each first chair is also sampled as a solo. These samples sound genuinely sublime, and they arguably bolster the appeal of the library, by providing elements which could easily make up a string quartet or quintet.

Both the Ensemble and the First Chair sections provide some very unique patches, which reside under the guise of Gestures. Here you will locate various glissandos and runs, along with some unique and interesting effect-style playing, sounding reminiscent of Ligetti.

Finale and encore

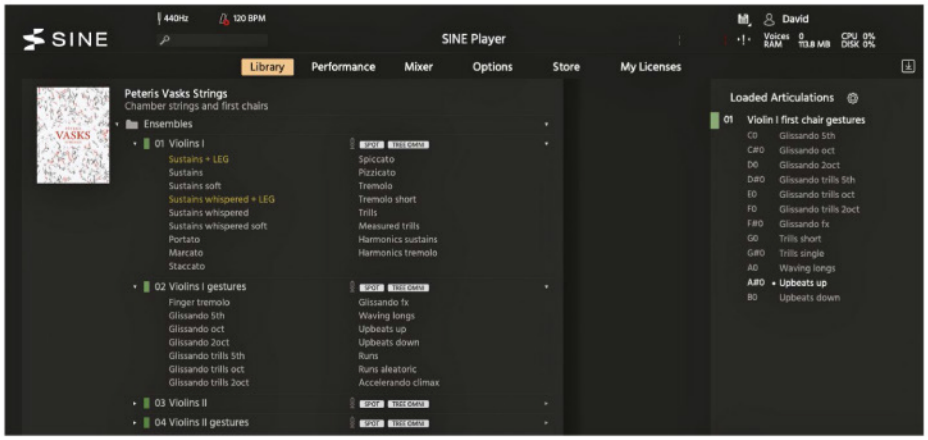
In putting Vasks Strings through its paces, we were particularly impressed with the purity of the overall sonics. Depending on playing and production, we did find that a visit to the Mixer page, within the Sine player, was worthwhile; adjusting the blend between the close microphones and the tree sharpened the legato patches in particular. It sounds incredibly convincing, and thanks to its sharpness in tone, works beautifully in a number of orchestral and commercial settings. **cm**

Web www.orchestraltools.com

The mixer page allows simple access to the Tree and Spot miked signals

The art of legato

The vast majority of samples and patches within Vasks Strings behave in much the same way as any other sound source you may have access to within your DAW. This library operates from within the OT Sine Player ecosphere, which acts as a one-stop-shop for all of the libraries, authorisations, and usage. Where things meander slightly is through the use of legato patching. This is the process of playing a smooth line, as one note moves swiftly to the next, to create a single phrase and line. This has become something of a Holy Grail in DAW-based orchestration, as it is difficult to create the perfect legato without forcing a degree of latency. This means that as you play a note, there is a short delay before you hear the note sound. This is reflected by feeling like you are playing late, as you track your strings to your other tracks, already recorded within your DAW. It also means that you have to adjust pre-delay, on any legato track, once recorded, in order to create a perfect sync. The results can be superb, but it may take some time and effort.



This library has an extensive number of samples, which may be loaded singularly or as key-switchable patches

Alternatively

Spitfire Audio Chamber Strings
£599
This tasteful suite features the substantial acoustic of the Lyndhurst Hall at Air Studios

Cinematic Studio Series Strings
$399
Recorded in the drier acoustic of a sound-stage, this features one of the best legato patches around

Verdict

For Beautiful and extensive Chamber String library

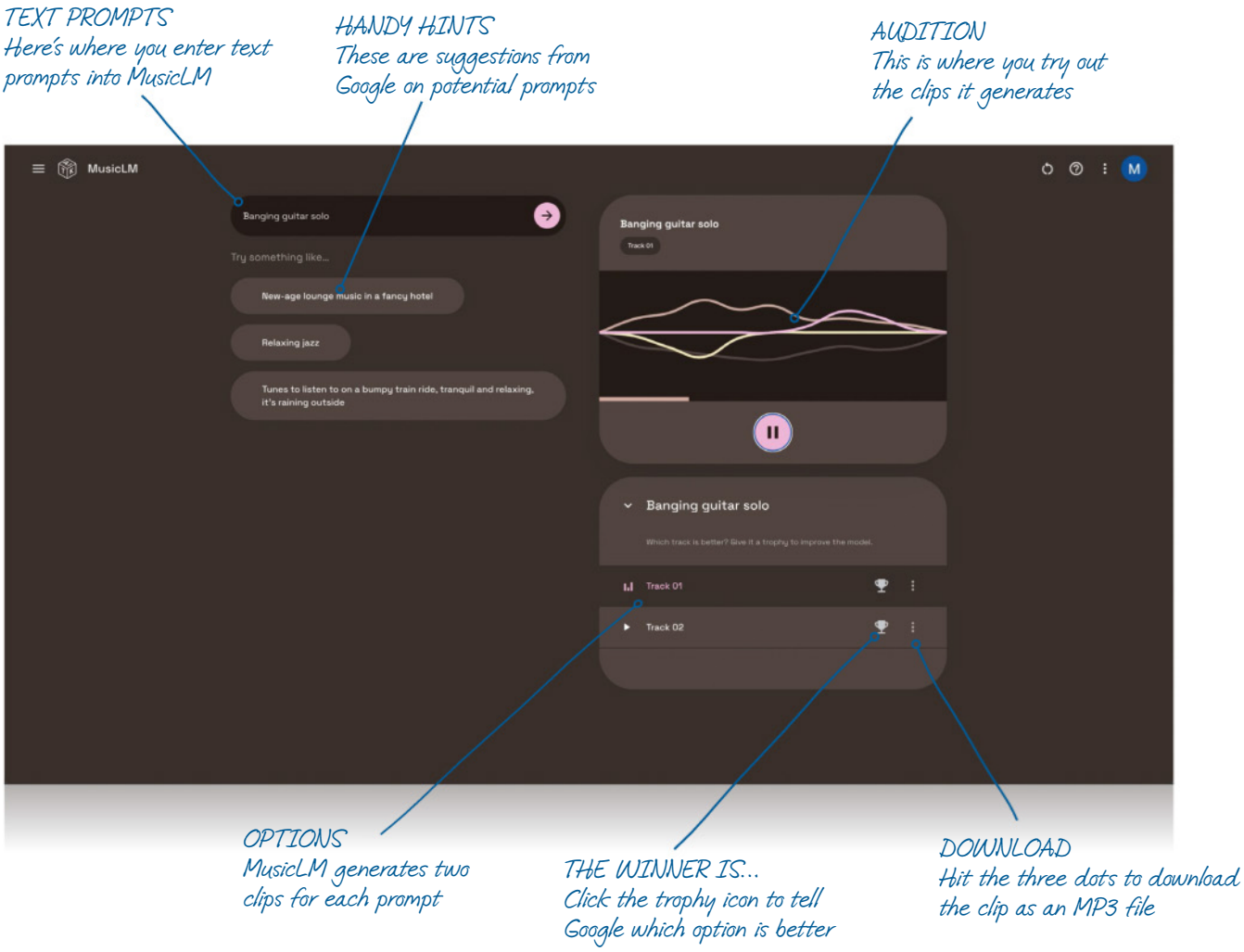
The sonic character is both charming and appealing

Includes some very unique samples

Against Legato playing will require some practice...

Peteris Vasks Strings is ideal for a number of production settings, from commercial, to classical or cinematic

9/10



Google MusicLM

FREE PC MAC

Google's AI-powered, browser-based tool uses machine learning to generate an infinite variety of sounds. Is this the future or just a gimmick?

> A powerful AI-powered music-making tool has just been unveiled by world-dominating tech giant Google, as part of the company's extensive research into artificial intelligence. MusicLM (LM is short for "language model") is a text-to-music sound generator that operates using an AI model that has been trained on thousands of hours of existing music.

MusicLM is capable of generating sounds and musical ideas on demand in response to detailed instructions. According to Google, the AI can understand prompts relating to genre, mood and type of instrument, it can adjust the experience level of the 'musician' it's emulating, and it can create music that's appropriate for a given context, like studying or working out. All you've got to do is type in your prompt, hit enter, and you'll receive two 20-second audio clips based on your instructions.

This essentially makes MusicLM a supercharged, AI-powered sample generator, capable of creating an infinite amount of royalty-free samples for producers to use in their tracks. This means MusicLM could have a significant amount of potential as a tool to be used within a music production workflow. However, as it stands, MusicLM isn't as sophisticated as we'd hoped it might be.

Model student

We tested a broad range of text prompts to see what we could generate using the software, and it's fair to say that the majority of these didn't hit the mark. First off, almost everything MusicLM generates has the same fuzzy and lo-fi character to it. This must be due to inherent limitations of the machine learning model the technology is based on, and it's a flaw that will undoubtedly be overcome in future iterations. However, it's a big problem if you want to use the software to create clean and polished audio samples.

First off, we tried using MusicLM to produce drum loops. We tried the prompt "130bpm drum loop" and the AI gave us two drum loops in return, neither of which were 130bpm. However, the loops were solid and interesting enough to drop into a project and build a track around. When we tried to get a bit more specific, using the prompt "130bpm techno drum loop, syncopated hi-hats, crash cymbal on third beat of every bar", MusicLM yet again failed to hit the

Overall, MusicLM doesn't seem poised to put producers and musicians out of a job just yet

brief on tempo. Crash cymbals were notably absent, though one of the prompts did contain some funky syncopated hats and the overall vibe was more techno-flavoured.

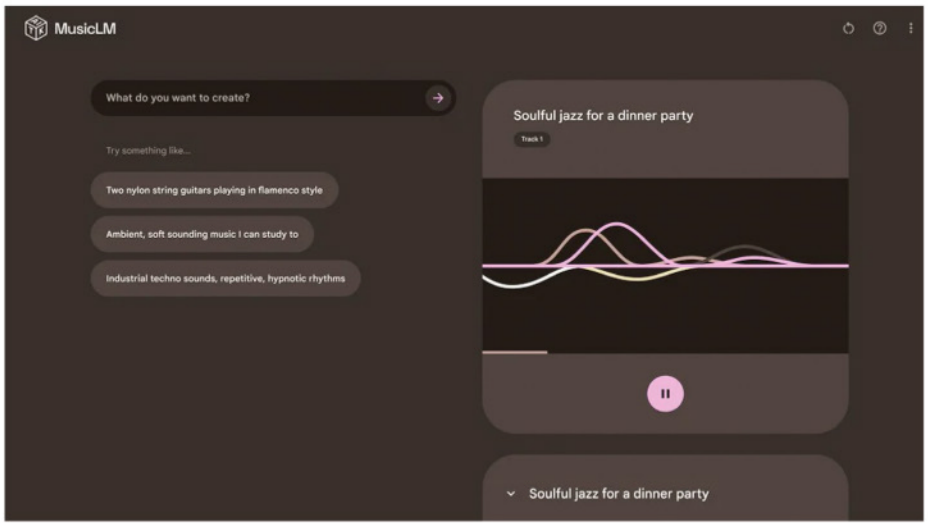
Voice of an AI angel?

Next up, we tried to generate some vocal samples in the style of Mariah Carey, and ran into a stumbling block: in an attempt to evade copyright issues, MusicLM has been designed in such a way that it's incapable of generating audio that imitates existing artists. In fact, the software won't produce vocals at all, and when we tried the prompt "female vocals", we were presented with an ethereal choir of garbled alien voices that sounded nothing like the female vocal hooks we were looking for.

In another test, we asked MusicLM to create a "lead synthesiser melody in A major". Simple enough, right? The software gave us a peppy, if uninspiring synth melody in return, though neither of the clips were in the requested key and both contained drums, making them less usable as a building block in a music production scenario. To fix that, we tried to be more specific, entering the prompt "lead synthesizer melody in A major, no drums or other instruments". This seemed to confuse MusicLM even more, as the software spat out a fully formed slice of synth-funk with both drums and bass attached.

So far, so unimpressive. Overall, MusicLM doesn't seem poised to put producers and musicians out of a job just yet, nor supplant sample libraries and sound designers as a sound-generating tool. It is, however, an intriguing, boundary-pushing tool that's useful for creating unexpected sounds and samples that could provide unique and creative places to begin tracks. Artificial intelligence is rapidly advancing in sophistication, and if this is what it can do now, we can only imagine what the tools made by Google and its competitors will be capable of in years to come. **cm**

Web www.aitestkitchen.withgoogle.com



Monsieur, with zis freshly cooked Google jazz interlude you are really spoiling us

Leon Neal/Getty Images

The big social media hitters have been jostling for their place at the front of the text-to-music queue

Worthy contenders

The past year has seen astronomical developments taking place in the field of artificial intelligence, as ChatGPT has taken the world by storm and generative AI-powered tools like DALL-E and Midjourney have captured the public's imagination with their phenomenal ability to instantly produce high-quality images.

While image-generating tools like these have dominated headlines, several companies have been quietly working on similar AI tools in the music-making sphere which, though they've not yet reached the mind-boggling levels of sophistication as their visual counterparts, have shown remarkable results in their ability to generate music and sound using machine learning.

Meta, the company behind Facebook and Instagram, has recently unveiled their own text-to-music AI, MusicGen. Operating in a similar fashion to MusicLM, MusicGen will produce audio clips of up to 120 seconds. It's also capable of extracting melodies from reference audio files uploaded by the user and incorporating these into the music it generates. So if you want to hear a banging EDM remix of *Greensleeves*, or a thrash metal version of *Get Lucky*, MusicGen will attempt to create it.

Alternatively

MusicGen
Free
Meta's open-source rival to MusicLM is just as powerful and can produce longer clips

Riffusion
Free
Based on the Stable Diffusion model, this makes spectrographs that are converted into audio

Verdict

For
- Royalty-free music samples for free
- A theoretically infinite amount of sounds
- Experimental results by accident

Against
- Responsiveness is hit-or-miss
- Audio quality is crunchy and lo-fi
- Musical ideas are often garbled

Though it's an impressive display of AI's advancements, MusicLM falls short as a genuinely useful tool for music producers

7/10

Soundware round-up

Bingoshakerz
Progressive House $20.95

Cool house beats, wistful synth work and an old-school flavour with new-school sheen. It makes for a super sweet selection of classic prog vibes, all packaged up with some great track-starting elements to be pulled and played with. The FM bass grooves sit pretty, and the melodies and musical riffs have emotional weight and substance. All the drum patterns and hits are solid and swinging, with MIDI tagging for added flexibility and creative possibilities. With over 650mb of cool and classy content, you'll be dipping in and out for heartfelt heat all summer.

www.bingoshakerz.com

7/10

Minimal Audio
Circuit $15

Modern drum & bass business abounds in this budget-conscious package of loops, chops and rhythms. Inside you'll find fast and furious drum beats, filled out with a little grit and grime for added character, as well as some glitched-out and pitch-played vocal lines for your breakdowns and hooks, and the kind of moody, fleshed-out melodic loops and low-end bass damage that'll have fists pumped high and screw-faces employed, club-wide.

Designed in collaboration with Austrian producer Screamarts, this one twists up the modern club sound in a novel way. Get involved.

www.minimal.audio

7/10

Aim Audio
DJ Presto One – Scratch Breaks £19.95

From DJ Presto One comes this ziggy-ziggy pack of tares, flares and cuts, for producers who struggle to rock a baby scratch. There's kick, snare and hat sounds all cut up on-the-one. Melodies are transformed and turntablised into fresh new grooves, and other notes and hits taken out for a spin on the decks.

The Rock Steady Crew member's skills are world class, and every 90-100bpm loop will add flavour and texture to anything you slide them into. Great for livening up breakdowns or adding that DJ battle funk to your percussion.

www.loopmasters.com

8/10

Loopmasters

Submotion Orchestra £34.95

The Submo crew have been doing Leeds proud for years on the live and festival circuit. With their captivating mix of everything from dubstep to jazz wowing the crowds in their wake. Here, they turn in some of the glorious, epic, delicate and heavy sounds they've been fusing on a sample pack rich in dubbed out atmospherics. The mighty 2.43gb collection covers organic and electric tones, with Rhodes and brass fitting nicely next to hardware keyboard sounds and synthesised bass. Top-notch audio ammo for heavyweight producers wanting to add a dose of soul to their electronica.

www.loopmasters.com

8/10

Audiotent

Cyborg: Arturia MS-20 V Presets £29/£39

This is a perfectly handcrafted set of presets for Arturia's Korg MS-20 V – the virtual version of the iconic synth (sold separately). Serving up 57 fresh takes for serious techno producers and melodic house heads to consider, there's a wide selection of deep subs, lifting leads and all other manor of mid-range sequences and airy pad tones. This exclusive pack comes in Standard Edition, with just the presets, or the slightly pricier Deluxe, if you wanna get more magic from the matching MIDI and WAV loops.

www.audiotent.com

9/10

Mode Audio

Attack £16

Super cool beats, coaxed lovingly from a well-treated plethora of tinkered and tweaked drum machines. From analogue titans of yesteryear to their digital offspring, each hit, loop and kit comes pimped and polished by hands with muscle-memory for the job.

The folders house some wonderfully custom-processed sounds, collectively providing a deep crate of samples fit for any style or genre needing that vintage thump and crunch. There's also MIDI and some channel strips, for your bonus beats. So, get digging!

www.modeaudio.com

8/10

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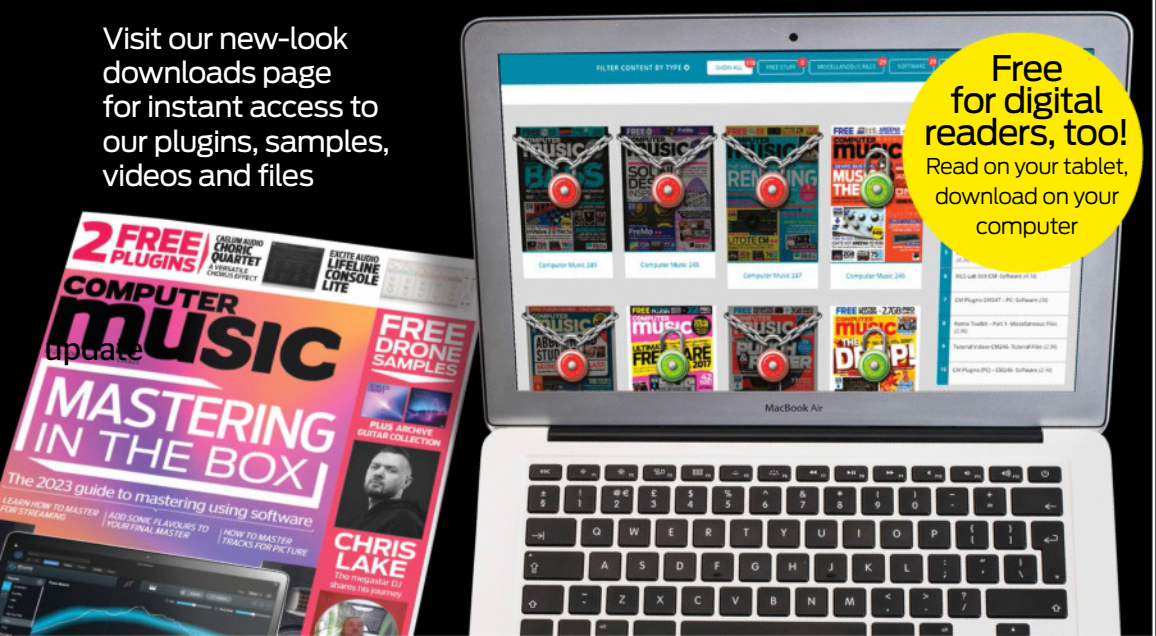

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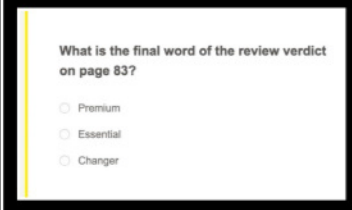

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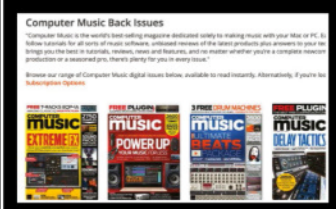


03 If you enjoyed that issue, you can still purchase our back issues via **bit.ly/pocketmags-cm** and downloads for those will be kept at **filesilo.co.uk/computermusic**

>Free software PC MAC

CAELUM AUDIO CHORIC QUARTET

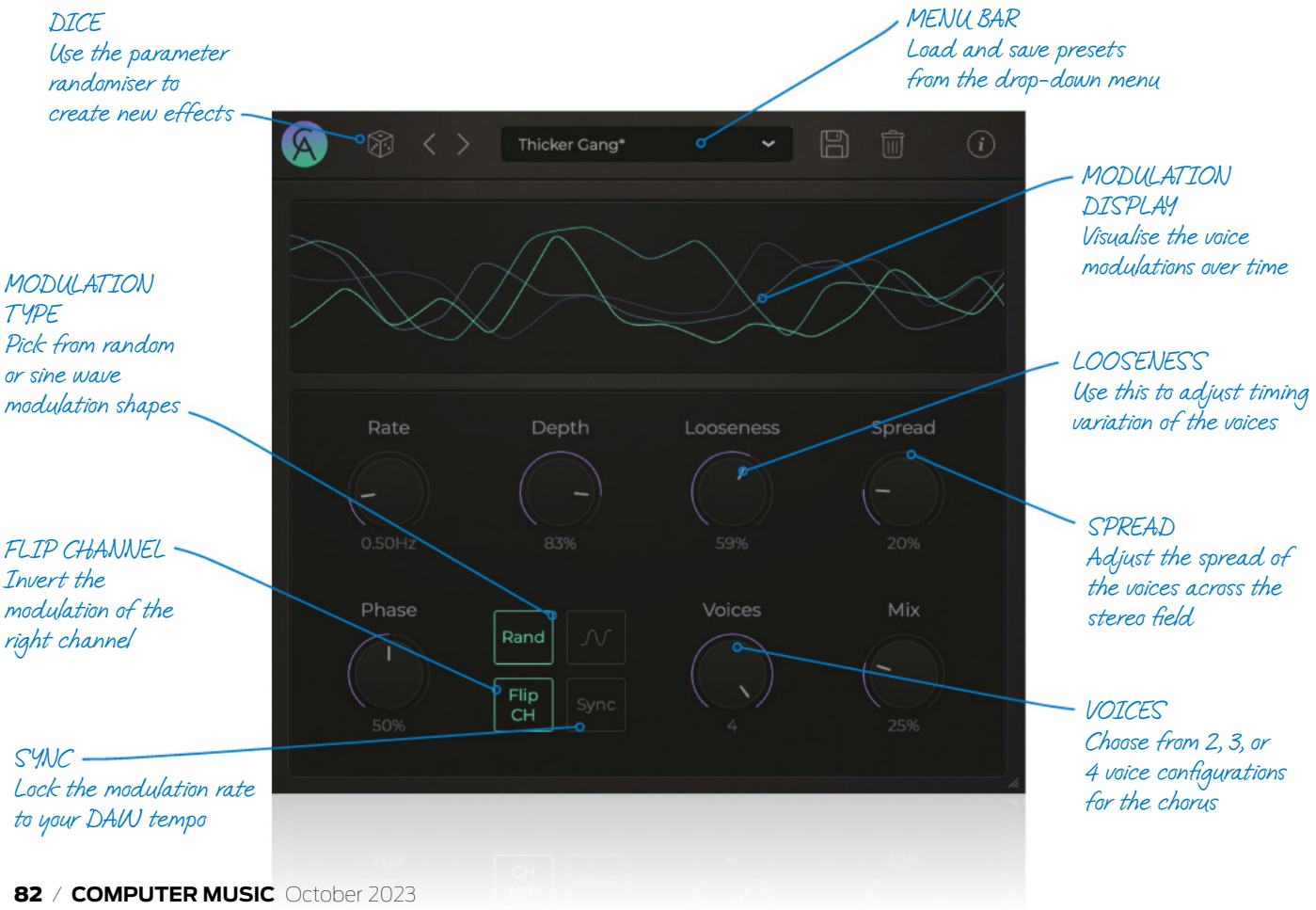
Chorus is a classic effect, and with up to four voices, this plugin could be just what you're after

> Here at *Computer Music* we like to provide you with a wide range of free audio production tools and we work hard with a number of developers to keep the offers flowing. This month we return to one of our favourite fledging developers, Caelum Audio.

This time round, we have a slightly different offering. Caelum Audio recently introduced a new advanced chorus and unison plugin, Choric, and they have also been working on a slimmed down version, Choric Quartet. This month we are providing early and free access to this future pay-for plugin, and you can grab your personal activation code via the form on our downloads page. Choric Quartet uses the exact same engine as Choric, but as the name implies, it offers a slightly more modest four voices. Nevertheless, it inherits many of its siblings' features and in particular has the excellent modulation display, which provides a quick indicator of the type, speed and complexity of modulation applied.

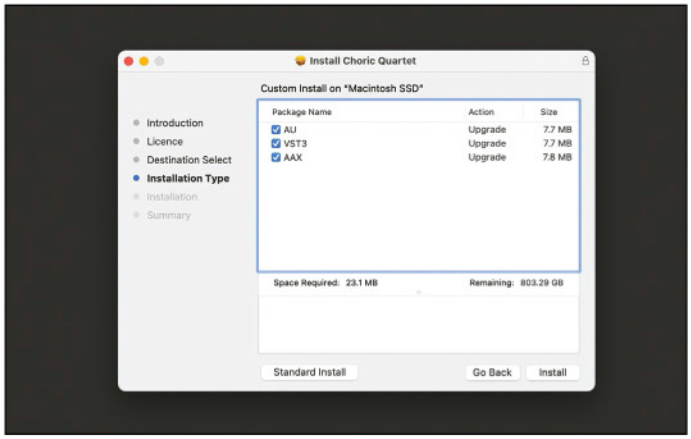
Further features include stereo spread, timing looseness, DAW tempo sync and right channel modulation invert. There's also a handful of excellent presets to get you started. In this tutorial we'll show you how to grab and install your free copy of Choric Quartet, and then take you on a run-through of its features, paying particular attention to the display and how informative it is. We'll then take a look at some typical chorus treatments and try out some of the presets.

Finally, if you like what you hear and want to investigate the full version of Choric, or maybe find out more about Caelum Audio's growing stable of plugins and sample sets then why not head over to www.caelumaudio.com



Download the accompanying video and the MIDI/audio files at **bit.ly/cm325downloads**

> Step by step 1. Downloading, registering and installing



1 > Head over to bit.ly/cm325downloads. With the current issue to hand, answer the quiz questions. Once complete, click the top link to head to the email form and sign-up to receive your personal Choric Quartet serial. Head to the link in the email to download the installer.

2 > Run the installer, and when prompted, choose which plugin formats you want to install (AU, VST3 and AAX). When you first load the plugin, a splash screen will ask for your personal authorisation code. Enter this and you should be good to go.

> Step by step 2. Getting to know your new plugin

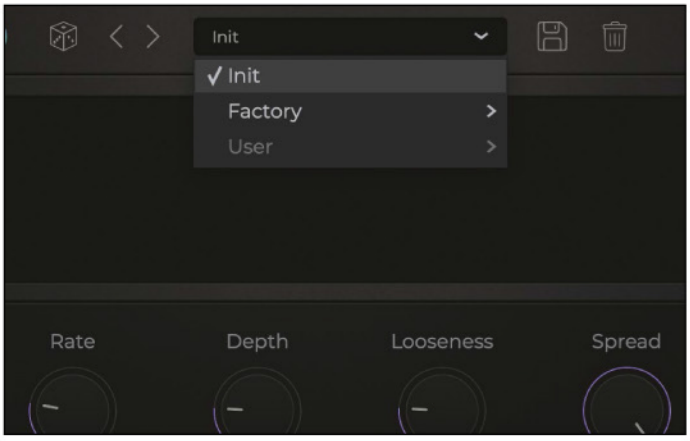
1 > The layout of Choric Quartet is pretty straightforward. At the top you'll find a menu bar with the preset browser in the middle (there are 15 presets). To the left, the dice icon activates the parameter randomiser and to the right, the disk icon initiates the saving dialogue for user presets.

2 > Below this is the modulation display. This provides a real time view of the modulation of each voice. Try loading up a few different presets and you'll see quite a lot of variety in this display. This offers great insight into the complexity or simplicity of the voice modulations. Click on the display for more options.

3 > The main parameter controls are in the lower half of the plugin window. Starting on the left, the first couple of parameters are for modulation Rate and modulation Depth. Rate (0.01 to 20Hz) can also be tempo-synced using the button in the middle (1/32T to 32 bars), and modulation shape can be either sine or random.

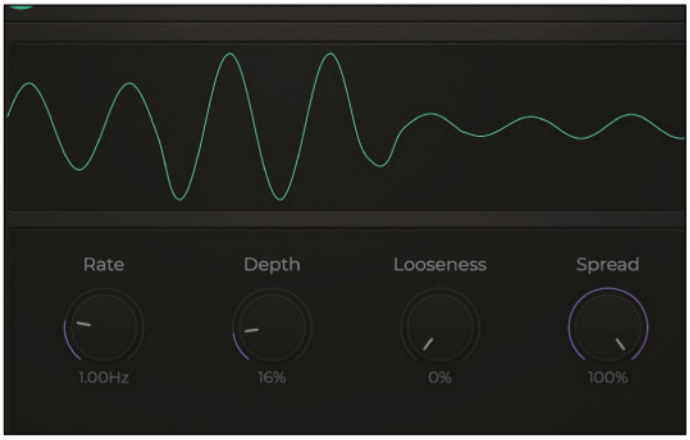
4 > You can then finesse your effect by selecting the number of Voices (2, 3 or 4), and adjusting global modulation Depth, voice stereo Spread, modulation Phase offset and timing Looseness. Rounding things off is a right channel modulation invert (Flip CH) and a global Mix blend.

> Step by step 3. Using the modulation display



1 > Choric Quartet has a very handy modulation display, and before we dive in with some practical chorus examples it's worth taking a look at how the display can help us understand the chorus modulations. To get started load up an instance with the Init preset from the preset list.

2 > Now switch the modulation shape from random to sine, deactivate the channel flip, set the number of voices to 2 and the Looseness parameter to 0%. The display only works if there is audio running and can also be deactivated from its options list. To get started we've loaded up a bass sound.



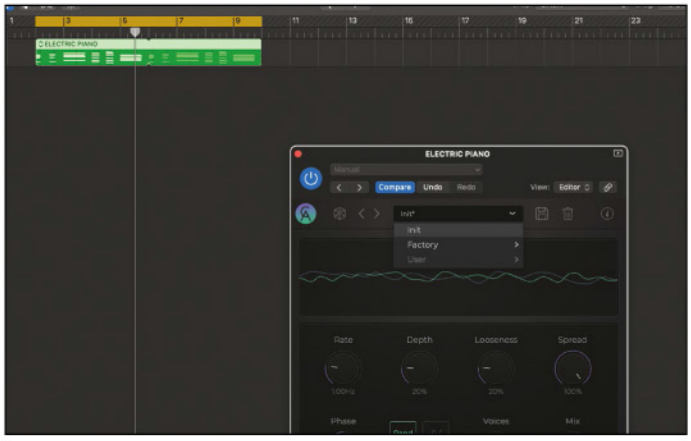
3 > With these basic settings, the display shows a single sine wave for the modulation. Try adjusting the Depth. You'll see that the amplitude of the waveform changes accordingly. Remember the display is a real time plot from right to left, and as you make changes, the previous settings are still visible for a while.

4 > Now look at the Rate setting. We can adjust this from very slow, right up to 20Hz or switch to Sync mode to follow the DAW tempo. Here we've done the latter, setting the Rate to ½. This produces one modulation cycle per 2 beats, or 2 cycles per 4/4 bar. You can see this to the right of the display.

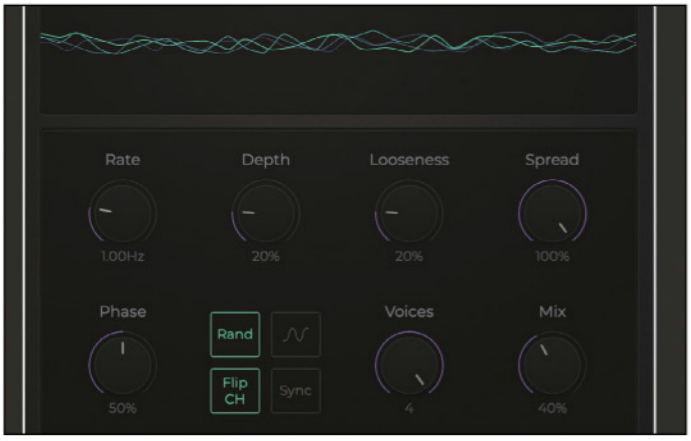
5 > The modulation for each chorus voice is also influenced by the Phase parameter. At 0% all voices are modulated from the same part of the modulator waveform, but as you increase this setting you'll see separate coloured plots are generated. With the maximum four voices, you can get quite complex modulation outcomes.

6 > Viewing the sine wave option provides a clear demonstration of what's going on with Choric Quartet's voice modulation. Once you switch to the random shape, which is great for typical chorus effects, you'll see a more complex display, but the fundamental concepts are the same. Here we have a pretty fast multiple voice modulation.

> Step by step 4. Exploring the chorus treatments



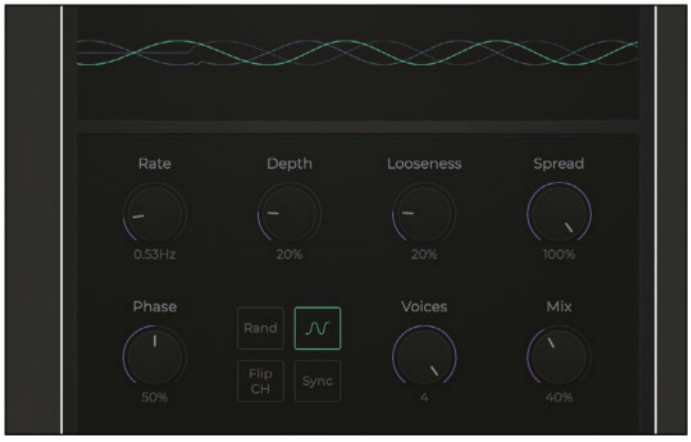
1 > Now let's take a look at some practical uses. Electric pianos love chorus, and Choric Quartet can produce various classic effects. Here we've loaded up an electric piano part and inserted Choric Quartet. Start by loading the Init preset, setting the Voices to 2 and Mix to 0%, leaving all other parameters in their default positions.



2 > The default settings deliver a reliable chorus effect, but you can tailor things further by modifying some of the other parameters. A good starting point is the channel flip, which inverts the modulation of just one side. You'll notice that with this selected the stereo image becomes wider.

3 > Now gradually increase the Mix balance to get your desired effect blend. We've set ours to about 40%. This creates a good, rich effect, but we can alter this to some degree using the voices. Each of the settings delivers a different flavour of chorus, with the 4 Voice option the thickest.

4 > Also significant is the Looseness option. Try turning this right up to the maximum. You should now hear noticeable delay and at this setting it's probably better suited to more weird effects (which we'll discuss later). Even so, up to about 50% is good for regular chorusing, with 0% delivering the tightest effect.



5 > So far we've been using the random option for modulation. Now try switching this to sine instead. This more regular modulation is quite wobbly at the default 1Hz setting, but if you slow it down a bit (we've set ours to about 0.50Hz) you should get a workable regular chorus effect.

6 > Finally, if we do want a wobbly effect, this often works better if we can lock the modulation to the track tempo, and this can be a good effect for our rhythmically simple part. Here we've selected the Sync button and then the ⅛ Rate setting, adjusting Voices and Mix to taste.

> Step by step 5. Trying out preset options

1 > Choric Quartet has a handful of presets that not only provide a good starting point but also demonstrate the breadth of effects it can produce. Let's check out some of them. For the first couple we'll stick with the electric piano and our first preset is called Controlled.

2 > This is a regular chorus effect with reasonably slow and subtle sine wave modulation. What makes it a bit more interesting are the four voices and the modulation flip. Throw in a bit of timing delay (Looseness is set to 15%) and you have a core effect that you can mix quite high, and here we've adjusted the Mix blend to 60%.

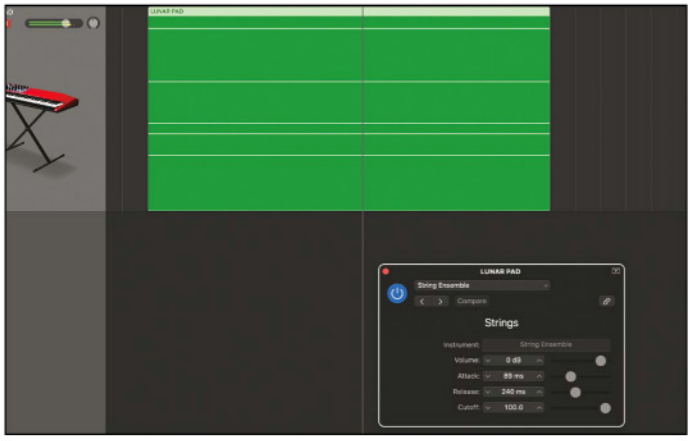
3 > Next up, the preset Isn't This Nice. This tempo-synced effect is very slow, with the Rate set to 4 bars. Using the random shape modulation with maximum depth, 4 voices and a high Phase setting (80%), it delivers a complex swirling effect that you can blend really high – we've set our mix to 90%.

4 > For the next preset, we've selected an arpeggiated guitar part. The DI'd electric guitar sound lacks character. We've loaded up the preset Tipsy Trio, which delivers an 8th note tempo-synced sine wave modulation. Low settings for Phase, Looseness and Depth make the effect quite subtle but characterful.

5 > Sticking with the arpeggio idea, we've now loaded up a regular synth arpeggio. Once again, the sound is quite vanilla and open to various treatments. The preset Fresh Width uses four voices, channel flip and a high Spread setting to add width, and we've set the mix to about 30% to add space to the original sound.

6 > Synth sounds can be fattened up with chorus and here we've loaded up a bass synth sound and the preset Sinkhole. This uses a very slow (0.14Hz) free time random modulation and four voices to create a richer sound. Meanwhile plenty of timing Looseness adds a sense of space to the sound.

> Step by step 6. Exploring Choric Quartet's oddball options



1 > Delay and modulation processing can be great for odd effects, so in our final walkthrough let's use some of Choric Quartet's weirder presets as a springboard to get creative. First up, we've loaded up a pad sound playing a sustained chord, and we're going to take this simple sound and bend it.

2 > The preset is called Finding The Note, and it uses just two voices but with a slow, tempo-synced sine wave modulation. With both the Mix and Depth set to maximum, the modulation creates an obvious gradual pitch modulation over time. To finesse this, all you need to do is adjust the Depth to taste.

3 > As mentioned, the Looseness control adds quite obvious delay at higher settings and some of the presets demonstrate this. Here we've returned to our arpeggiated synth part and loaded the preset Swarm the Plucks, which combines fast random modulation with almost maximum Looseness for a frantic flavour-filled effect.

4 > Sticking with the same arpeggio part, we've loaded up Slapback. This is a much simpler effect with medium speed modulation and minimal depth. However, the high Looseness setting with just two voices creates a very clear delay. Combined with maximum Spread and Mix you get a wide slappy effect.

5 > For our final Looseness example we've returned to our arpeggio electric guitar part and loaded up the preset We're Going Back. This uses four voices and very slow modulation for a spacey effect, but it's the high Looseness setting that adds its delay like effect, and all we need to do is adjust the Mix blend to taste.

6 > Finally, we've loaded up Vaguely Granular. This fast, four-voice effect with random modulation is great for creative mashing and although not as extreme as distortion, it has similarities. Here we've used it to dirty up our pad sound, adjusting the Mix blend as required. As you can see, Choric Quartet is full of creative potential.

Download all assets for this issue at **bit.ly/cm325downloads**

Drones

This month, we bring two packs stuffed with all-new, track-enhancing drones, produced via a range of gear. Download them from **bit.ly/cm325downloads**

Seamless Drones

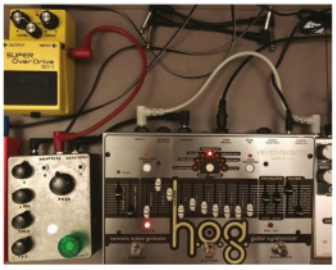
Robbie at Cyclick brings out both his axe and virtual instrument arsenal to mount a sustained drone onslaught...

"The drone underpins so much music around the globe. Drones are a seemingly infinite resonance that can be soothing, trance-inducing, joyful, unnerving, and aggressive, often at the same time. This sample pack provides drone loops in seven tempos (90, 100, 110, 120, 130, 140 and 170bpm), with each tempo folder featuring six drone types, which are explained within the PDF within the download folder.

"Most of the drones have been created as seamless loops, with contiguous start and end points to prevent any clicking, but when you do this with often complex stereo waveforms, start and end samples may be mid-phase, and therefore they will click/clip if played as a single instance. To prevent this and enjoy flawless looping, just fade the start and end loops, or use a few milliseconds of attack/release if using a sampler.

"The six drone types are: CassetteStrings, DoomGuitar, DuoMono, EbowGuitar, GuitarHogFreeze and TripSynth."

There are more details in Rob's PDF in the Samples download folder at ***www.bit.ly/cm325downloads***



SELECTED GEAR

Gretsch G5122DC Electromatic guitar
Squier Telecaster Custom P90 guitar
Ibanez AS7312 12 string guitar
Danelectro Dano 63 baritone guitar
Ernie Ball VP Jnr volume pedal
Electro-Harmonix HOG pedal
Origin Effects Cali76 Compact Deluxe
Fairfield Circuitry Long Life EQ/Filter
Arturia V Collection
SoundToys plugins
UAD plugins

Synth Drones

Meanwhile, Oli from Groove Criminals has carefully filtered and effected a synth-flavoured selection

"We've been droning on this month ('what's new', I hear you cry) and have tried to use the typical mixture of both software and hardware. On the more traditional synth side, we rinsed the three oscillators of the Behringer Model D, both on its own and sent through the Mother 32 to add an extra oscillator and master filter. The Moffenzeef MSG2 is a fat-sounding digital drone synth in a guitar pedal format that is superb by itself or when fed into the rich sidechain of the Drolo Stretch Weaver.

"We split the single output into two for the L/R inputs of the Stretch Weaver, so the MSG reacts against itself for some unique textural shifts. Another small form but big sound unit is the DecadeBridge Bora – a compact six-oscillator drone synth. We let this drone stay raw and also fed it through the 914 fixed filterbank Eurorack module which finds extra little nuggets of interesting frequency within the dense tones.

"Last but by no means least is the Soma Lyra-8 with its four pairs of oscillators, delay and distortion. Like the rest of the hardware, we've included both raw and processed drones."

SELECTED GEAR

Soma Lyra-8
Moog Mother 32
Behringer Model D
DecadeBridge Bora
Moffenzeef MSG2
Moogerfooger LPF
Behringer 914 fixed filterbank
Old Blood Noise Minim
Drolo Stretch Weaver
Chase Bliss Mood
Montreal Assembly Count to 5

FROM THE cm VAULT

Classic samples

Guitar Rhythm and FX

Guitar texture, be it in rhythmic form or as a coloured, effected tone, can add real sonic depth. Experiment with our classic packs!

Guitar Rhythms

Armed with an assortment of stunning six-strings, Robbie assembled a delightful series of rolling chords: "This sample collection concentrates on acoustic and electric guitar rhythm parts, a sort of bread 'n' butter set. These are all two-bar loops, with the odd exception, and were recorded as such with only top 'n' tail fades for edits (I kept playing a part until I knew it'd loop right – that's dedication, and also editing is boring). Not every loop will start with a perfectly punctuated note as it may well form part of a strum/pick that starts at the end of the loop. Please also note that the keys used were picked for commonality (A, C, D, E and G) in composition as well as guitar tuning – I don't have anything against B and F, or any of the flat/sharp keys, honest! The Hondo H124B acoustic guitar is a stalwart of the studio. It's no Gibson, Guild or Martin, but it gets the job done."

For more information on this collection, read Robbie's original PDF explaining his miking, guitar and sampling choices.

SELECTED GEAR USED

GUITARS

Hondo H124B acoustic

Fender Strat (1972 hardtail)

Gretsch G5122DC

Squier Tele Custom P90

Squier Jazzmaster

PEDALS

Little Labs Redeye DI/reamp

Moog MF Boost

OTHER

Trident-MTA Signature Two

Nuendo, IK Amplitube and various plugins

Guitar FX

Oli Bell from Groove Criminals dug out his guitar effects to bring you this processed collection of guitar goods... "To make this pack we've tried to make the oddest, dirtiest, strangest single shots and loops we could, just using a guitar and a string of pedals (or sometimes just one).

"The pedals we used (and love) include granular delays, octave up and down fuzz, synth fuzz, shimmer reverb, reverse playback, time stretching, granular sampling, pitch shifting, feedback loops, ring modulation, bitcrushing and much more than I have space to explain!

"We've tried to describe what processing is happening in each sample name but sometimes we just went for odd or noisy! We have also included a few samples of our phone's audio being picked up by one of the Telecaster's humbuckers, then processed through a pedal chain, just because we could."

SELECTED GEAR USED

Fender Fat & Vintage Tele

Mooger Fooger ring mod

Chase Bliss Mood

Demedash T-120 tape echo

Red Panda Particle/Tensor

Montreal Assembly Count to 5

Old Blood Noise Minim

Many (many) reverbs, fuzz, delay, bit crusher and other guitar effects

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Loopmasters

Loopmasters cm325 samples

This month's demo sample selection highlighting Loopmasters' latest releases

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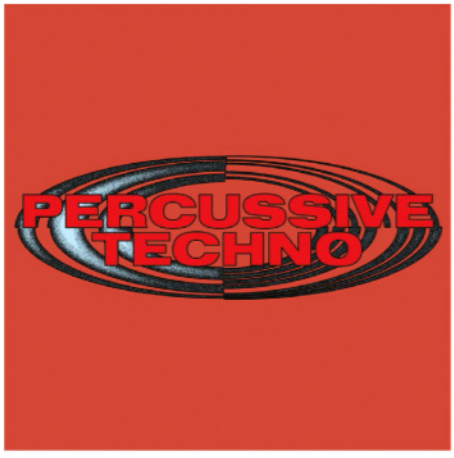
02 **AIM Audio** Exhale Trip Hop
03 **Element One** Dusty Dub
04 **Loopmasters** Profound Techno
05 **Loopmasters** Universoul
06 **UNDRGRND Sounds** Percussive Techno



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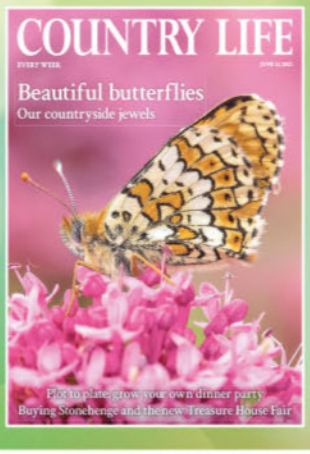

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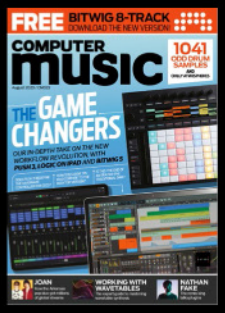

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